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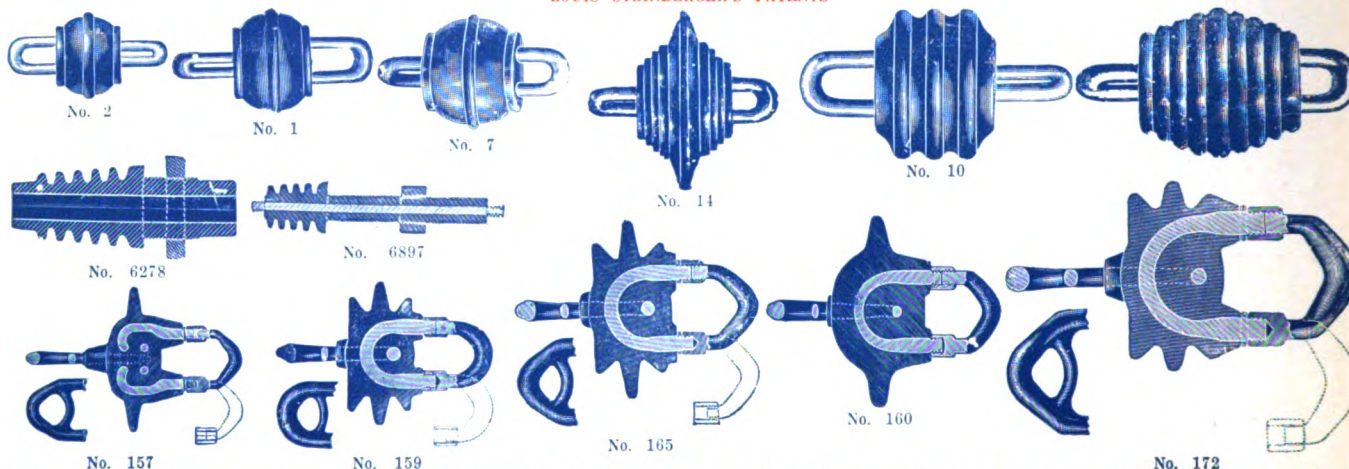
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VOL. 50

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AUGUST, 1920

CLEVELAND

No. 8

# U.S. Pledged to Powerful Marine

Nation's Course Set to Gain and Hold Strength on  
Seas—Doubts of Future Fail to Pass Inspection

CONGRESS in enacting the Jones law placed the United States some laps ahead of the position to which most Americans, who had the welfare of the merchant marine sincerely at heart, had dared to aspire. Candor, struggling through the cloak of pessimism which in too many instances is inseparable from a discussion of America's marine future, compels acknowledgment that the mere fact that such a law could be passed is the strongest possible reason for optimism. Amid the welter of propaganda which has made post-bellum days a period of easy money for agitators of every breed, but mostly mongrel, and has made the average citizen doubtful of everybody and everything, optimism of the most robust type was required to expect a group of legislators to act with reasonable speed and ability in shaping a merchant marine bill.

## *Awakening from a Stupor*

Experience in watching the progress of marine legislation through congress in the past half century has revealed a lack of interest in the subject which is symptomatic of the ills which held American shipping in a stupor until stirred to life by war. The subject has never ranked high in the minds of vote seeking congressmen, except as it afforded a target for hurling verbal bombs against the shipping combines at a time when American vessels registered for overseas trade numbered only a handful. Yet this last congress, torn by disagreement with the executive administration and watchful of the national political campaign, paused long enough to enact a law, with only slight opposition, which meets to a high degree the desires of shipowners, shipbuilders, labor, insurance men and in fact almost everybody except the foreigner and the socialist.

This betrayal of intelligent interest by congress proves for one thing that the legislators now recognize the subject has become one of national interest, a condition which in itself automatically corrects the most serious ailment of prewar days.

Under such circumstances, every opportunity is

offered for buoyant hopes over the future prosperity of American shipping. To the foreigner with his conviction that Americans boast loudly whether or not any reason is provided, the passage of the Jones act must certainly have been looked upon as a forerunner of easy predictions of sweeping all other maritime nations from the sea. Actually the deep-rooted pessimism which tinged American marine affairs for so many years before the war, is still prevalent to a surprising degree.

Predictions are freely made that the shipbuilding business will become little more than a memory, and that in a few years, American shipping will either have rusted away or been bought for a song by foreigners. Many Americans, naturally proud of their country and its accomplishments in industrial and engineering lines, seem to feel, when shipping is being discussed that all the abilities and virtues are combined in the general term "foreigner" and all the disabilities and faults are concentrated in the American.

## *A Pledge Which Will Not Be Revoked*

As a matter of fact, shipbuilders and shipowners under every flag are encountering the disturbing problems which the reaction from war's thorough upheaval has made common to every industry in every country. The comparative newness of America's strength in the marine field tends to becloud the future as it has not the traditions of success and power which other industries possess and which make these assured of the future although they have greatly enhanced capacity which to the business judgment of 1914 would have spelled bankruptcy.

Firm assurance for the permanent prosperity of American shipping can be gained by anyone who will put down on one side the barren prospects of 10 years ago and array alongside the bright prospects of today and tomorrow. The United States stands pledged both on the statute books and in the hearts of its citizens to a powerful merchant marine and that pledge will not be revoked.



# World Charter Market Reviewed by

## BUSINESS DROPS

**Cargo Offerings Decline While Other Disturbing Factors Make Ship Owners Apprehensive of Future**

**F**REIGHT traffic has been far from satisfactory. This conditions exists upon the Pacific as well as the Atlantic coast. On the Atlantic, steamships have been denied cargoes because of the unprecedented congestion and the lack of rail transportation, all of which has been due to strikes. Lloyd's reports a million more tons of ships in operation today than before the war, and it is said that there is a surplus of cargo space offered in nearly every port of the world, but up to the present time no marked reductions in ocean rates have been made. Shipowners and operators contend that the increased cost of operation, based on fuel charges, high wages and slow dispatch in many ports, makes it almost an impossibility to effect any material lessening of the carrying tariffs.

Grain business from the northern range has been quiet, with British government business offering at 13 shillings to 13 shillings 3 pence per quarter for heavy grain to United Kingdom. Montreal to Italy has been around \$23, and barley from gulf has been open at 75 cents per 100 pounds. Many boats have been under detention, and the whole position has become uncertain. The adverse factors, however, have not prevented owners offering tonnage, and this has brought the market down, values being \$14 to River Plate; \$14.50 to Rio; \$16 to \$16.50 to Antwerp or Rotterdam; \$17 to French Atlantic; \$19 to West Italy; \$20 to Christiania, and \$21.50 to \$22 to Stockholm. Lumber has been quoted at \$40 to \$45 from gulf to South America. Sugar from Cuba has not been in demand, while nitrates have been quiet, some business having been done at \$17 to the states.

### Delay Ship Sales

American steamship owners are showing apprehension over the shipping outlook. At a late meeting of the American Steamship Owners association, a resolution was adopted petitioning the shipping board to consult with the owners on questions of policy before rules and regulations are issued under the new merchant marine act. Steamship men have been active in working out a new agency agreement for the management of government vessels, the present agreement not being satisfactory. Previously, the capital value of the government ships has been fixed at \$200 per dead-weight ton, and a large depreciation must be written off before profits are shared. The steamship people, it is understood, are asking for a commission of 5 per cent of the freight money on the outward voyages and 2½ per cent on the inward.

Although the new law was framed for the purpose of placing the merchant marine in private hands and upon a solid financial basis, naturally little progress

to this end has as yet been made. The shipping board offered for sale the LEVIATHAN, DE KALB, and the VON STEUBEN, all ex-enemy passenger vessels. Bidders were few. While these are excellent vessels they are in very bad condition and considerable money must be spent in reconditioning them. In addition, the board has advertised wooden vessels for sale.

Evidence is offered that the shipping board expects to remain for some time in the shipowning business. The board decided to establish the office of director of advertising which will have charge of advertising ships and surplus stocks for sale, as well as announcing the various steamship services in which the board will be interested. Furthermore, the board has created a new operating district in the South Atlantic, with headquarters at Savannah, Ga. Southern commercial interests are advising against any immediate sale of the government ships and it is apparent that they are having a measure of success in persuading the shipping board to establish direct connections from southern ports. The coal trade was seriously depressed recently by the sudden determination of the government to embargo shipments in favor of New England. For a time it was feared this would make bunkering at Atlantic ports difficult as well as check the export of coal. Under the new ruling, coal for these purposes can not be had except under permit.

### Will Use Ex-Enemy Vessels

In the coastwise services some activity has been in evidence, although now these lines are desirous of making material advances in their rates. The Dollar line plans early occupancy of the large plot of land purchased last year at Hunt's Point, Bronx, N. Y., where wharves, warehouses, etc., will be erected. The Isthmian Steamship line will inaugurate its services between Atlantic and Pacific ports with the STEEL TRADER. The Luckenbach line will operate on the same run with regular sailings, the schedule at present having been arranged as far ahead as September next. In contrast to the success

of these coast-to-coast services is the short coastal business. The MADISON of the Old Dominion line has been sold to Rotterdam, Holland, interests, and this old dependable line is now operating on a thrice-a-week schedule between New York and Norfolk, Va. The ST. LOUIS, formerly of the American line, has been sold to French interests. With the assistance of the

### To Launch Seven Ships

**O**FFICIALS of the American International Shipbuilding Corp., agent for the Emergency Fleet corporation in operating the Hog Island shipyard, are planning to make the launching of the last of its 122 ships a memorable occasion. The program calls for launching the final seven ships within 50 minutes, thus completing the big Hog Island program by establishing a new world's record for rapid sending of tonnage into the water. The vessels will be launched July 21. On May 30, 1918, Hog Island launched five in 48 minutes, 10 seconds, the Moore shipyard later launching six. Since Aug. 5, 1918, Hog Island has averaged more than a ship a week.

# Experts in This Country and Abroad

government, the United States Mail Steamship line will place in service the bulk of the ex-enemy passenger boats. Officials of the North German Lloyd have arrived in the United States, presumably for the purpose of trying to work out an agreement by which the American ships will be used in their old runs. This line may act as agents in German and other ports for and rent its piers to the new American company. The Hamburg-American line has already worked out a similar agreement with the Harriman interests, but that does not necessarily presuppose success for the new negotiations. The United States Mail has begun the reconditioning of the SUSQUEHANNA. This vessel will be used in the passenger business between New York and Danzig, Poland. The vessel will be ready for service this month. The board has also turned over the AMPHION and the GEORGE WASHINGTON to this line. The latter is being reconditioned at the Boston navy yard. These vessels are not in bad shape and reconditioning will not take long.

To compete with the companies enjoying government assistance, the Red Star line announced last month that it would inaugurate a direct passenger service between New York and Danzig. The first vessel to be used will be the GOTHLAND. Other vessels will be added as the services require.

## New Lines Being Opened

The Acme Operating Corp. proposes to establish a regular freight service between New Orleans and Havana, Cuba. The Tropical Fruit Co., Savannah, Ga., has inaugurated a service between that port and the West Indies, utilizing two auxiliary schooners just purchased. The United States Ship Corp. has been capitalized under the laws of Maine to take over the United States Shipping Co. and the United States Transport, Inc. The Galveston, Tex., firm of S. Sgitcovich & Co. has been reorganized as Sgitcovich & Co., Inc. The Transmarine Corp., recently organized by the interests

allied with the Submarine Boat Co., is planning to create a barge line in connection with this ship line between Newark, N. J., and Havana, Cuba. The barge line will use the New York state barge canal, having through routing arrangements at Buffalo. Moore & McCormack have completed their arrangements for establishing a service out of New York for India. The GOLD STAR

## Lake to Ocean Route

EFFORTS to promote a deep waterway from the lakes to the Atlantic have brought about the calling of a Great Lakes-St. Lawrence tidewater congress at Detroit, July 22-24. Active interest has been taken for some months by many business associations in lake ports as well as in territory contiguous to the lakes, in the revival of the plan to dredge a deep channel through the St. Lawrence river valley. An excellent program of speakers has been provided for the Detroit meeting, representing the various commercial fields which would benefit from this new route to the sea. An American and Canadian commission is investigating.

## WEST RATES SAG

Quotations on Principal Commodities  
Are Lowered by Pacific Operators—  
Many New Lines Establish Services

is the first ship used, to be followed by the GLENOWA. Stops will be made at Bombay, Colombo, Madras and Calcutta. The American & African Steamship line will have a new service via the Suez canal to Red Sea and East African ports, beginning with the steamer GORDON CASTLE. The ports of call will be Massowah, Mombasa, Kilindini, Zanzibar, Majunga, Beira and Delagoa Bay. Norton, Lilly & Co. also plan a freight service direct from New Orleans to Australasia. The COSMOS is the first steamer sailing. The Kerr line has inaugurated a service from New Orleans to India with the sailing of the POLYBIUS. The United Fruit Co. began a regular service between Boston and Cristobal, C. Z., with the SAN PABLO. This line will make connections for the west coast of South America. The Crystal Coal Corp. has been organized by the Victor S. Fox interests, which recently organized the Consolidated Maritime lines. This is a project designed to engage chiefly in export coal. This line has been carrying coal to Italy, France and Scandinavia.

## Labor Troubles Continue

Freight traffic has been seriously curtailed by strikes and embargoes. Baltimore, Philadelphia and Boston have been practically tied up during the past month, and the longshoremen's strike at New York gave an indication of breaking only during the last days of June when a slight improvement was shown. Prior to that time conditions were extremely bad. The traffic tie-up spread to Philadelphia, and congestion prevented business at Baltimore and Boston. The movement to shift vessel from New York to other ports on the Atlantic was stopped because of the new difficulties encountered at these ports. Some business from the Atlantic ports to Australia and India was sent via the Panama canal, but the flood of Japanese cancellations has filled the Pacific ports' warehouses to overflowing.

Deck officers on American ships have hesitated about signing the wage agreement, which was intended to end further labor troubles aboard ship for another year. On the other hand, the Danish ships are breaking their strike, the FREDERICK VIII coming into New York manned by a volunteer crew. In addition to suffering the blight of strikes, American vessels have now been restrained from obtaining cable insurance in London. Lloyd's ruled that no more "overhead" insurance would be accepted in view of the new law enacted by the state of New York. This may have hastened the action of Washington officials in calling a conference of insurance people which resulted in creating a combination of American capital which will be adequate to cover all American needs.

In the opinion of shipping men, the return to this

country of thousands of men who went to Italy and other Mediterranean countries last fall and winter, affords a good basis for hope that labor conditions in American ports will show a great improvement soon. Fall will also mark the return of a large number of tourists who rushed to visit Europe this year, and passenger business promises to continue on the boom. Rates on transatlantic passages have been increased by \$15 on first class and \$10 on second class.

### Foreign Lines Active

The Cunard line has decided to construct a huge pier in the harbor of New York to relieve congestion at its present docks which are chiefly concerned with passenger traffic. The White Star line has converted the OLYMPIC to an oil-burner and restored her to the transatlantic trade. The French line has decided to operate a line of steamers from Baltimore to German ports, and the Fabre line has inaugurated a service between New York and Marseilles, France, the first ship used being the PROVIDENCE. The South American Steamship Co., Chilean, has inaugurated a service to New York with the RENAICO. Lloyd Sabaudo has decided to open its own passenger offices in New York to book for this line to Genoa and Naples, Italy.

The Hamburg-American line will send the UNDINE from Berlin to South America within a few weeks, reinaugurating a service halted by the war. The North & South Atlantic line, Bergen, Norway, will operate a line from Norway to the west coast of South America. The Royal Belge Steamship Co. proposes a service between Bahia, Brazil, and European and South American ports. The Canadian government merchant marine will have a line to the Far East. The Mexican Navigation Co. will operate a line between Galveston, Tex., and Mexican ports. It is also said that influential Chinese merchants have raised the capital for a steamship line which they will establish between the Orient and Atlantic ports of the United States.

### Lower Rates on Pacific

In an effort to equalize rates through North Pacific gateways with those prevailing by the all-water route from Atlantic ports, 26 representatives of transpacific lines have just agreed upon new conference rates at an important meeting held at Vancouver, B. C. Substantial reductions were made, confirming recent predictions in these columns that freights were likely to seek lower levels.

The principal reduction is in lumber to the Orient which will now be carried for \$25 per 1000 feet. Until the present, \$35 has been the rate. Cotton was reduced 50 cents per 100 pounds, the new rate being \$1 per hundredweight for high density bales and \$1.25 for standard bales.

### Cargo Demand Slackens

Taking the charter situation as a whole, conditions are not at all favorable and indications are that there will be a scarcity of cargo, both ways, for north Pacific lines for several months. The panic in Japan has greatly reduced the movement of exports to that country and practically no new business is being placed. Ships are coming from the Far East in ballast or with part cargoes and with an over supply of carriers, vessels are likely to be diverted to other routes or rates will be still further reduced. Some operators are opposed

to further cutting of freights on the ground that lower rates will not increase the amount of tonnage moving and would mean operating at a loss. As a matter of fact, the number of lines and vessels on the transpacific route has greatly increased in the last three years and under present conditions it will be a case of the survival of the fittest.

Half a dozen French sailing vessels have been fixed for fall loading to carry grain from San Francisco and northern ports to the United Kingdom at 150 shillings per ton. This is the first season in several years that this business has been done and is a reminder of the usual fall movement of grain in sailers prior to the war although at that time the normal rate was only 27 shillings, 6 pence. To the United Kingdom, \$25 is the present rate on flour with offers of \$20 for August-September loading. Space is being offered for Scandinavian ports at \$26 for flour. To Great Britain the conference lines are still carrying lumber at \$60 although the rate for ties in the same direction is \$45. Demand continues for lumber tonnage to Cuba at \$25. Lumber freights to Peru and Chile are softening, future business being done around \$32.50 as against \$36 recently.

### Boston Trade Crippled

A month ago it appeared as if the railroad embargoes at New England gateways would react to the advantage of the Boston port by forcing the manufactured products of the district into the northern port in place of New York. Continued railroad congestion has, however, so severely cut into the grain receipts at Boston that any other advantage has been more than offset. While some grain, principally Canadian, is reaching Portland, Me., over the Grand Trunk, the receipts at Boston have been almost negligible and boats after grain have been diverted at sea to other ports.

The export tonnage through all New England ports dropped off during June. However, practically all the regular sailings from Boston were maintained by one means or another. General cargo vessels for Scandinavian points loaded coal at Hampton Roads and picked up balance of the cargo at Boston. Other vessels bound for Mediterranean points took on Canadian steel at Quebec to complete the reduced cargoes. Exports to France and England have kept fairly normal while an increase is noted in the machinery trade with France. Scrap steel has been a new commodity moving from Boston to Scotland. Return cargoes have included chalk from England, raw rubber, jute, tea, etc., from Mediterranean points, sugar from Cuba and South America, coffee from South America, in addition to the usual general merchandise.

Several new lines have been projected but as yet no new regular sailings have been started. The Robert Dollar Co. has had plans for a line of steamers to go to Japan and possibly China via the Panama canal, but it is understood some difficulty has developed in securing the tonnage of steel and steel products which was counted on as the backlog of this service. A new passenger service has been started from Boston to Cherbourg, France, and Bremen, Germany, by the United States Mail Steamship Co. and reports are current of the re-establishment of the Boston-Hamburg service by the Hamburg-American line. Prior to the war, the direct line to Hamburg was one of Boston's important services.

# Ocean Freight Rates

Per 100 Pounds Unless Otherwise Stated

New York to	Grain	Provisions	Cotton (H. D.)	Flour	General Cargo cu. ft. 100 lbs.	‡Finished Steel	Coal from Virginia cities
Liverpool .....	\$ 0.60	\$ 0.75	\$ 1.55	\$ 0.65	\$ 0.50	\$ 1.00	\$10.00 T
London .....	0.60	0.75	1.55	0.65	0.50	1.00	10.00 T
Christiania .....	1.00	1.25	2.00	1.05	0.70	1.50	15.00 T
Copenhagen .....	0.90	1.25	2.00	1.05	0.70	1.50	15.00 T
Hamburg .....	0.50	1.00	1.67½	0.85	0.65	1.25	14.00 T
Bremen .....	0.50	1.00	1.67½	0.85	0.65	1.25	14.00 T
Rotterdam .....	0.10	0.75	1.55	0.70	0.50	1.00	10.00 T
Antwerp .....	0.70	0.75	1.55	0.70	0.50	1.00	10.00 T
Harve .....	0.70	0.90	1.57½	0.90	0.60	1.25	8.00 T
Bordeaux .....	0.70	0.90	1.57½	0.90	0.60	1.25	8.00 T
Barcelona .....	30.00 T	30.00 T	2.25	30.00 T	—30.00 T—	18.00 T	18.25 T
Lisbon .....	30.00 T	30.00 T	2.25	30.00 T	—30.00 T—	18.00 T	16.00 T
Marseilles .....	0.75	1.25	1.67½	1.25	0.70	1.50	15.00 T
Genoa .....	0.70	1.10	1.47½	1.00	0.65	1.20	12.00 T
Naples .....	0.70	1.10	1.47½	1.00	0.65	1.20	12.00 T
Constantinople ..	23.00 T	28.00 T	.....	23.00 T	—28.00 T—	18.00 T	21.50 T
Alexandria .....	.....	1.60	.....	20.00 T	—28.00 T—	15.00 T	21.50 T
Algiers .....	.....	1.75	.....	1.25	—35.00 T—	15.00 T	18.25 T
Dakar .....	23.00 T	23.00 T	.....	23.00 T	—23.00 T—	20.00 T	.....
Capetown .....	.....	.....	.....	30.00 T	—27.00 T—	20.00 T	.....
Buenos Aires ..	.....	.....	.....	.....	—20.00 T—†	12.00 T†	12.50 T
Rio de Janeiro....	.....	.....	.....	.....	—18.50 T—†	12.50 T†	13.50 T
Pernambuco .....	.....	.....	.....	.....	—19.00 T—†	13.00 T†	14.00 T
Havana .....	0.55	0.63	.....	0.55	.....	.....	0.71
Valparaiso .....	1.25	1.25	1.16	1.25	0.65	1.16	18.00 T
San Francisco ..	.....	1.40	.....	0.75	.....	.....	0.72
Sydney .....	.....	.....	.....	.....	25.00 to 30.00 T	18.00 T	.....

T—Ton.

‡Landed.

‡Heavy products except rails.

From North Pacific Ports to	Lumber Per M. ft.
San Francisco .....	\$ 9.00
Southern California .....	10.50
Hawaiian Islands .....	16.00 to 18.00
New Zealand .....	35.00
Sydney .....	35.00
Melbourne-Adelaide .....	40.00 to 42.50

From North Pacific Ports to	Flour Per Ton
Oriental ports .....	\$10.00
United Kingdom .....	25.00
Scandinavia .....	26.00

From North Pacific Ports to	Lumber Per M. ft.
Peru-Chile .....	\$32.50 to \$35.00
South Africa .....	55.00 to 57.50
Cuba .....	25.00
Oriental ports .....	25.00
United Kingdom .....	60.00
United Kingdom (ties).....	45.00

From North Pacific Ports to	Steel Per Ton
Oriental ports .....	\$11.00
From North Pacific Ports to	Cotton Per Ton
Oriental ports .....	\$20.00 to \$25.00

## Cost Factors Bring Ship Cancellations

From Our European Manager

LONDON, July 10. (by cable.)—Orders for 72 large British ships were canceled last month. Work had not been begun on these vessels and the decision of the shipowners to postpone construction indefinitely resulted from the growing doubts over the future of the ocean freight market as well as from the lack of certain knowledge concerning the future trend of prices for steel and the probable increase in labor costs. Recent action of various labor bodies in seeking greatly increased wage rates are

held largely responsible for the heavy cancellations.

Ocean rates continue distinctly easier, recent transatlantic charters having been made at 17 shillings per deadweight ton per month compared with 30 shillings in January. Trade with the River Plate is depressed, upriver maize bringing only 80 shillings. In far eastern routes, the sugar trade with Java and the coal trade with Calcutta are the only ones showing any activity. In the former run, 120 shillings is quoted to the United Kingdom. Coal exports are low.

# Britain's Shipbuilding Centers

Nine Great Districts Where British Merchant Ships and Naval Vessels Are Built—Some Centers Date Back 400 Years

BY JOSEPH HORTON  
British Correspondent, The Marine Review

Introduction by H. Cole Estep

IN AN English railway dining compartment, after the inevitable cheese, butter and hard crackers, a British business man and his American friend were discussing the industrial aspects of their respective countries. "One mistake I found being made in America regarding these islands," said the Briton with customary candor, "is that some of your people are inclined to size-up the United Kingdom on a square-mile basis rather than from a *national* standpoint. You are inclined to forget that within the compact circumference of England, Wales, Scotland and Ireland, regardless of the fact we cannot span more than a few hundred miles in any direction, there exists not simply a state, but a great nation, with all the complexities, diversities, force, energy and activity of a first-class power. In making comparisons, don't fall into the error of judging us simply by the map."

This little anecdote explains a point of view which the writer of this introduction feels should be thoroughly kept in mind in studying any phase of British industry. It takes only two hours or so to go from Glasgow to the Tyne, yet these two great shipbuilding centers represent two distinct fields of national development and are as unrelated in their activities as Newport News and San Francisco. In fact, in considering the shipbuilding industry of Great Britain, it is especially essential to appreciate its complex national character. It is perhaps the strongest and most completely developed

industry of its kind in the world, with roots going back to the fourteenth century.

It is not, however, the purpose of the article which follows to trace the growth and development of British shipbuilding, but instead merely to set forth for the American reader the principal physical characteristics—the leading descriptive facts—regarding the ship construction centers of the United Kingdom.

There are nine leading shipbuilding centers in the British Isles, namely the Clyde, the Tyne-side, Belfast, the Tees, Barrow-in-Furness, Sunderland, Liverpool, Hartlepool and Hull. Of these, the first five are the most important. The geographical location of these districts is clearly indicated on the accompanying map. The great Clyde region is in the southwest of Scotland, 400 miles northeast of London; the Belfast district lies in the north of Ireland, across the straits from the Clyde; the Tyneside is in the northeastern corner of England, 270 miles north of London; while 30 miles south of it on the same coast fronting the North sea is the Tees or Middlesborough district; the Barrow district is due west of Middlesborough, 125 miles south of Glasgow on the Irish sea. These centers draw their chief supplies of raw material from the Glasgow, Middlesborough, and Sheffield iron and steel districts. In the article which follows, prepared by the British correspondent of THE MARINE REVIEW, the salient characteristics of each important British shipbuilding center are described in turn.

NATURAL advantages have helped Great Britain to achieve her acknowledged pre-eminence as a shipbuilding and shipping nation. In the first place, Britain is located conveniently near the continent of Europe with its vast business activities, and at the same time she is surrounded by an unusual succession of fine harbors situated at frequent intervals all around the coast, from one or the other of which no great inland center of industry is much more than 100 miles distant. Her business enterprises thus naturally are allied with the sea.

Her shipbuilding progress, however, has been largely influenced by a strong element of necessity since the same extended coast line which is such a potent factor in promoting her waterborne commerce also makes her peculiarly vulnerable to foreign attack, as she found, greatly to her

embarrassment, during the war. Therefore, the urgent need for self-defense has often furnished the driving force necessary for the extension and improvement of British shipbuilding facilities.

## Prepare for Future

British shipbuilding is attracting unusual attention at present, not only because of the worldwide demand for shipping, but on account of the numerous combinations and amalgamations in which shipbuilding concerns have recently figured prominently in English financial circles. It seems evident that a general bracing up is in progress, in preparation for great activity in the future.

The relative importance of the various shipbuilding districts of Great Britain and Ireland are perhaps best illustrated by Lloyd's shipping returns showing the tonnage under con-

struction at the end of March, 1920. These figures are as follows:

District	Tons
Clyde .....	811,022
Newcastle-on-Tyne .....	629,403
Gretnock .....	367,370
Belfast and Londonderry (Ireland) .....	359,250
Sunderland .....	346,215
Middlesborough, Stockton and Whitby .....	217,790
Barrow, Maryport, Workington .....	118,900
Liverpool .....	107,619
Hartlepool .....	89,140
Hull .....	78,168

It should not be assumed that although the shipbuilding industry of the United Kingdom is busy, this tonnage represents the capacity of the various yards, since they are all badly handicapped by shortages of material, especially of steel and fuel, and directly or indirectly by labor or transport troubles of various kinds. The ship construction capacity of the

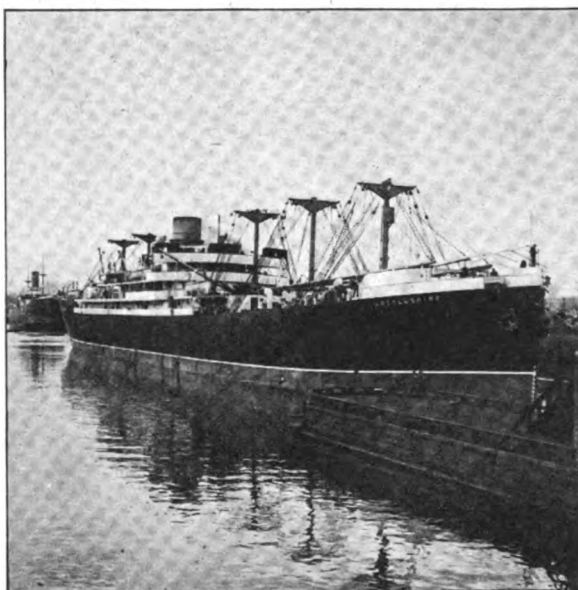


country was largely increased during the war, and in all the leading districts extensions of more or less importance are still in progress.

The relative position of the various districts may be presented rather differently by an enumeration of the shipbuilding firms. The Clyde easily heads the list with 46. Taking the others alphabetically, Aberdeen has 16, Belfast two, Barrow-in-Furness two, Bristol five, Cardiff five, Dundee two, Humber 18, Leith seven, Liverpool 11, Plymouth eight, Port Talbot one, Southampton and Cowes 11, Newport three, Sunderland 16, the Tees (including West Hartlepool) 10, the Thames 15 and the Tyne 16. Small centers like Yarmouth, Whitby, Workington, Lowestoft, etc., may be left out of consideration, although a number of yards are located at these points. The pre-eminence of the great Clyde shipbuilding district in Scotland dates back for at least 400 years, and probably for much longer, although Henry VIII laid the foundation of the British navy as a distinct service by constituting the admiralty and navy office, and by establishing Trinity house and the navy dockyards of Deptford, Woolwich and Portsmouth. For the first time he fixed regular salaries for admirals, captains and sailors, and made sea service a distinct profession. Henry VII is credited with building the first ship of the British navy. This vessel was 138 feet long, 38 feet beam, of 1000 tons burden, and cost £8700. James IV established the dockyard at Newhaven, near Leith, on the Forth, not far from Edinburgh, and in 1511 ordered the building of the Great Michael, "ane varie monstrous schip." It was said of this ship that she "waisted all the woodis in Fyfe except Falkland Wood, besides timber that came out of Norway." She is said to have had massive sides of oak 10 feet thick, so that "no cannon do at her." A later generation apparently decided that the utmost limits of shipbuilding had been reached, for in 1620, in connection with the production of the PRINCE ROYAL, the masters of Trinity house declared that the construction of a 3-decker "was beyond the art and wit of man. There was no port—the Isle of Wight only excepted—in which she could ride, and no ground tackle which could hold her." The old masters, who had to work with primitive appliances, had no idea how greatly

the wit and art of man would expand.

The Forth district is still important as a shipbuilding district, but has long since been outdistanced by the Clyde. The latter river itself is conveniently located, and though it was originally tortuous and shallow, persistent dredging and improvement, on the initiative of local enterprise, now enables it to carry the largest ships. All the essential materials, especially under the head of metals, are within easy reach of the yards, while the high class pig irons of Scotland are specially adapted for the production of ship steel. Some of the largest vessels afloat have been produced on the Clyde, and such firms as the Fairfield Shipbuilding Co., William Beardmore & Co., Ltd., D. & W. Henderson & Co., Ltd., and Barclay,



ENTERING MANCHESTER CANAL FROM AUSTRALIA

Kurle & Co., all of whose yards are of large capacity, enjoy a world wide fame.

Scotchmen have always been distinguished in engineering fields, and the great engineering firms of the port of Glasgow, which take such a large share in the equipment of vessels, have contributed in no small degree to the fame and success of the Clyde. Undoubtedly the introduction of the age of steel, and particularly the application of open-hearth steel to shipbuilding, gave a marked impetus to this greatest shipbuilding center of Scotland. The city of Glasgow literally swarms with factories large and small devoted to metal production in some form, having to do with the equipment of ships; while as to the most important material, steel, the greatest steel districts of Motherwell, Coatbridge and Govan are all within easy reach.

Steps have been taken lately to link up with leading shipyards some of the largest steelworks in Scotland, which will give certain shipyards a practical monopoly of the output of the leading mills. In fact, nearly all the Scottish steel companies have lately passed under the control of prominent shipbuilding firms. For example, the Glasgow Iron & Steel Co., which has an output of nearly 8000 tons of steel per week, has been acquired by a group of shipbuilders.

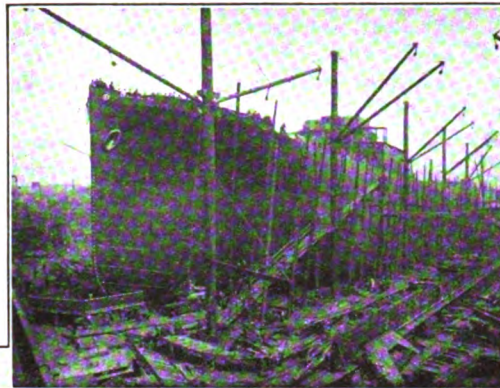
In a general survey such as this, Greenock, which is 20 miles or so nearer the mouth of the Clyde than Glasgow, may be treated as belonging to the greater center, although it is separately treated in Lloyd's returns. When its output is added to that of Glasgow, the total shipping tonnage of the area now building, considerably exceeds a million tons, and puts all other British districts out of the running in competition. Several large companies are located at this point. The firm of Russell & Co., for example, for years has averaged an output of 18.8 vessels annually, representing an average of 50,000 tons, and during 30 years this one concern added 1,117,150 tons to the world's shipping. The Greenock area differs in no essential respect from Glasgow in its productive facility. The largest ships afloat are regularly undertaken by the great firms on the Clyde, and a considerable number of Cunarders have been turned out in that district. One of the largest builders is the great firm of John Brown & Co., which has a river frontage of 3200 feet and 10 berths with a capacity of 90,000 tons. Its shipbuilding and subsidiary yards cover an area of 80 acres and employ 10,000 men. The first vessel of the Cunard line, the BRITANNIA, was built at Port Glasgow by Robert Duncan as long ago as 1840, and the ill-fated LUSITANIA was turned out by John Brown & Co.

Belfast, although not furnishing the tonnage produced by the Clyde shipyards, has a fame of its own, certainly not inferior to that of Glasgow. Unlike the Clyde, its operations do not go back over hundreds of years. Shipbuilding began in Ireland as recently as 1850, and the leading firm in Belfast, Harland & Wolff, did not commence operations until 1859; yet for years that firm has operated what is said to be the largest self-contained shipbuilding establishment in the world. The success of Belfast has been won

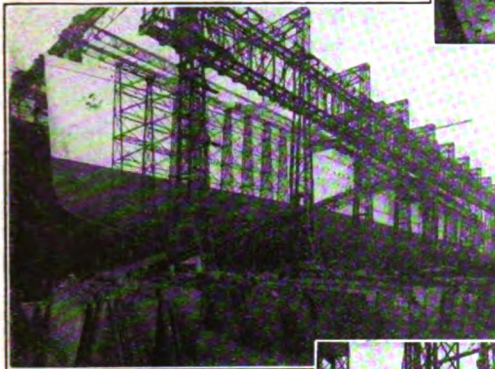




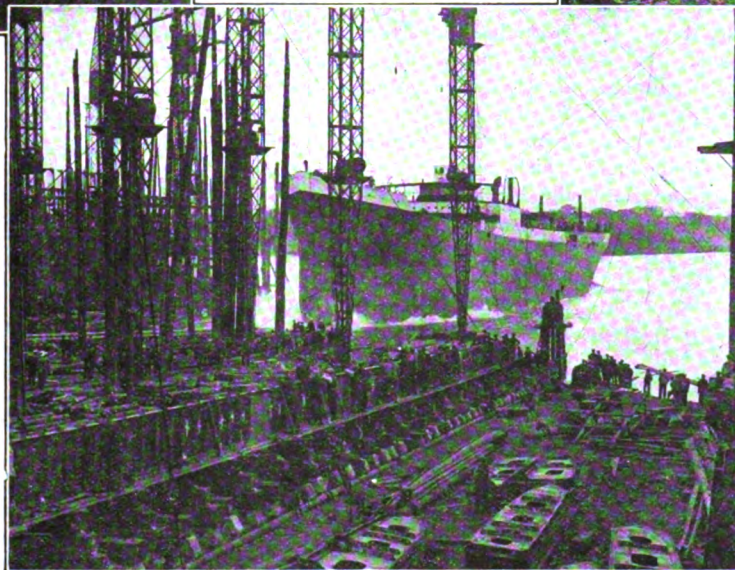
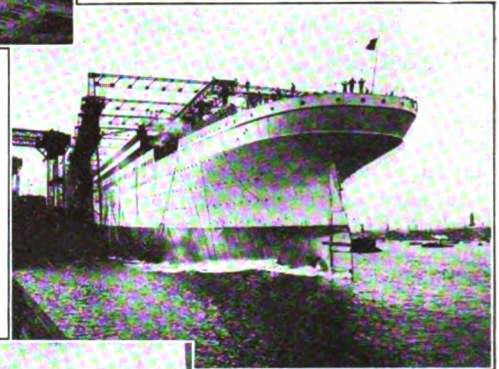
Olympic, largest British built passenger vessel on stocks at Harland & Wolff yard



Launching the huge liner Olympic at the yard of her builder, Belfast, Ireland



Oil tank steamer San Fernando of 18,450 tons built by Armstrong Whitworth & Co.



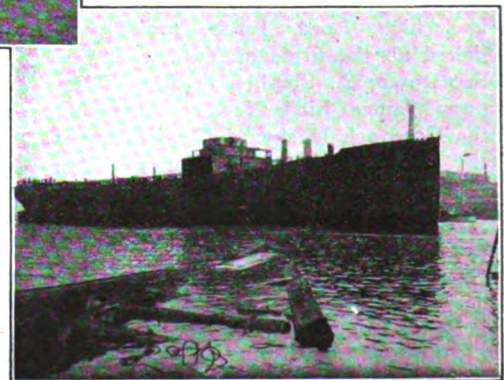
Large view shows launching of S. S. Bata at yard of John Brown & Co.



At left is 15,500-ton mail and passenger steamer Almanzora



Launching huge tanker San Fernando at New Castle-on-Tyne





turned out from their Belfast yards alone, aggregating 156,047 tons, with 138,760 indicated horsepower. It should be added that this firm has not restricted its operations to Ireland, but has shipyards at Glasgow, as well as engineering works, and engineering and repair works at Southampton. The several works in Great Britain cover an area of 230 acres, making, with the Belfast works, a total of about 450 acres. The pay roll approaches \$800,000 weekly.

#### Safe Harbor in Ireland

Undoubtedly, an enormous advantage in favor of Belfast is its fine waterway, the premier manufacturing city of Ireland long having had the reputation of possessing one of the safest and most commodious harbors in the United Kingdom. The harbor is 12 miles long and 5 miles wide, with a minimum depth of 26 feet.

Another large Belfast firm, Workman, Clark & Co., was third on the list in 1918, with an output of 19 vessels totalling 69,000 tons. It is obvious that where heavy armored ships are concerned, such as those which many private shipyards produced during the war, the Clyde can build more economically than Belfast, being much nearer the steelworks. At the same time, Belfast, has benefitted to some degree from her modern character, as everything is scientifically laid out and the Irish city has shown wonderful aptitude for the speedy production of ships. For some reason, also, Belfast has had fewer labor disputes than the other districts and the local workmen have the reputation of working amicably and diligently.

In view of the dependence of the Irish shipyards on outside sources of steel supply, it is not surprising to find that Messrs. Harland & Wolff have shown quite as much keenness as other shipbuilders in the promotion of amalgamations for securing supplies. A short time ago they took part with David Colville & Sons, another firm of shipbuilders, in securing interests in several steelmaking concerns. One combination of this kind, in which Lord Pirrie took part, linked up the firms of Yarrow & Co., Scotstoun; A. Stephen & Sons, Glasgow; James Little & Co., Glasgow; the Greenock Dockyard Co., Greenock; the Ardrossan Shipbuilding Co., Ardrossan; and the Campbelltown Shipbuilding Co., Campbelltown.

The contributions of Belfast are usefully supplemented by Londonderry, where the whole of the shipbuilding is in the hands of the North of Ireland Shipbuilding Co. The

shipbuilding industry is favored by excellent harbor accommodation at Loch Foyle, but its operations are relatively small compared with those of Belfast.

All the remaining shipbuilding areas in Great Britain are pre-eminently iron and steel districts, and their operations, on a large scale, date many years subsequent to those of the Clyde. The Tyne on the northeast coast began shipbuilding in 1842 and the Wear, the Tees and the Humber followed shortly afterward in the construction of iron vessels. Lloyd's Register of Shipping shows that the *SIRIUS*, built in 1836, was the first vessel in which iron was largely employed, although iron boats of small capacity had been employed on the Forth and Clyde canal for some years prior to this date. The inference from the coincidence of dates is obvious, suggesting that a new sphere of service had been found in shipbuilding for the iron and steel produced on the northeast coast of England. At the beginning, however, the wildest optimist could hardly have foreseen the extent to which Tyne shipbuilding would grow. In this area are the great works of Armstrong, Whitworth & Co., Ltd., which extend for several miles along the banks of the Tyne. The shipbuilding works are considerably aided by the big plant which this company has at Openshaw, near Manchester. At the time of the armistice, this firm, in its various departments, was employing on war work 78,000 persons, involving a monthly wages account of over \$4,000,000. It was in 1882 that this company, which was then Armstrong, Mitchell & Co., Ltd., began the construction of war vessels. As showing the magnitude of the Armstrong operations, this company built during the war 47 warships, fitted 62 others with armaments, repaired and refitted 521 warships, built 22 merchant ships, armed 240 merchant ships with guns and built three airships, beside doing a mass of miscellaneous work in the way of armament and ammunition.

#### Building Big Liners

In the same area is the big shipbuilding concern of Swan, Hunter & Whigham Richardson, Ltd., whose yards occupy 80 acres on Tyneside and have a maximum annual output of 150,000 tons. Not far away is Jarrow, where Palmer's shipbuilding yard is located, with the same annual capacity as Swan-Hunter. When Prince Albert visited the Tyneside a short time ago, he saw several new Cunarders being built, including the *LACONIA*, the *ORANIA* and the *ALBANIA*, at various yards. The Newcastle builders have no fewer than 10 other Cunarders in building, all of

which are to be launched during the present year. It is significant that the firm of Swan-Hunter has lately increased its capital from £5,000,000 to £9,000,000 (\$20,000,000 to \$36,000,000), and that the same firm is a leading promoter of the Shipbuilding & Associated Industries, lately incorporated with a nominal capital of \$80,000,000.

Sunderland, on the Wear, also has a comparatively large production, and its operations are carried on by 11 firms. Its location on the east coast gives it equal advantages with Newcastle in the command of raw material, fuel, and access to the great Yorkshire and Durham steelworks. That district has not figured so prominently as those already named in the production of leviathans, and its aggregate tonnage is realized by a numerous aggregation of smaller steamers of moderate tonnage built for cargo purposes.

#### Another East Coast Center

The River Tees has recently forged into prominence due to the rapid growth of the Middlesborough steel trade. The principal shipbuilding center is at West Hartlepool, at the mouth of the river. One of the largest shipbuilders in this district has an annual output of 65,000 tons. The neighboring yards in Middlesborough, Stockton and Whitby, considerably exceeded a total of 200,000 tons of new ships a year. This area is certain to grow rapidly in the future, especially as the river is constantly being improved.

In the Liverpool area, shipbuilding has located itself mainly on the Birkenhead side of the River Mersey where production is growing rapidly, largely on account of the enterprise of Cammell, Laird & Co., who have a big yard at Birkenhead. This firm carries on large steelmaking operations near Sheffield, and derives all of its steel from its three plants at Cyclops, Grimesthorpe and Penistone. The latter place is 12 miles from Sheffield where about 8000 workers are employed. The Birkenhead works occupies 108 acres, all of this plant in some way serving shipbuilding operations. There are 12 building berths, one of which can take a ship of about 1000 feet in length. A basin of 14 acres is provided for fitting-out new vessels, and the repair, afloat, of damaged vessels. A great deal of refitting is done by Cammell, Laird & Co. During the war this firm dealt with 502 vessels, which were overhauled, refitted or repaired; these included nine battleships, 60 cruisers, 100 British destroyers and 95 United States destroyers, together with sub-



WHERE PRINCIPAL SHIPYARDS OF THE BRITISH ISLES ARE LOCATED

marines, armed merchant vessels, etc. In addition the company built 155,106 tons of new ships during the war.

The only important district remaining to be mentioned is that of Barrow-in-Furness, which includes Maryport and Workington in Cumberland on the Irish sea. Barrow-in-Furness, which is 266 miles from London and 84 miles from Liverpool, is really a great shipbuilding center. It turns out a much heavier tonnage than it is credited with in Lloyd's returns, for the simple reason that the figures given exclude vessels built to the order of the admiralty for other than mercantile purposes, and Barrow is pre-eminently a warship-building center.

By means of a patent lift-dock apparatus, vessels of 3000 tons displacement can be lifted in 35 minutes for repairs. The Barrow docks occupy 131 acres of water space and the entrance has a width of 100 feet. This company has also carried through a number of successful amalgamations. Most of the machinery for its ships, however, and a great part of its steel is furnished from the River Don Works at Sheffield, one of the biggest plants in that important city. Vickers played an unusually important role in the provision of warships and war material. It is quite likely that the Barrow area will henceforth figure much more

as mercantile shipbuilders, though they reopened to meet the emergencies of the war. There is no probability that the Thames will seriously enter the lists as a building area for mercantile vessels on a large scale owing to its serious handicaps.

It is clear from the figures given in the foregoing that in spite of difficulties, the British shipbuilding industry is steadily recovering. At the end of March the tonnage under construction was 400,000 in excess of that building at the end of December and 1,140,000 more than was in building in March of last year. The returns do not take cognizance of ships below 100 tons burden.

## Marine Review Strengthens European Service

**I**N ORDER to provide larger and better facilities of a permanent character for the growing requirements of our European division, the London office of the MARINE REVIEW was moved on July 1 from 16 Regent street to 2-4 Caxton House, Westminster, London, S. W. 1. Correspondence for our European office should be addressed to Caxton House hereafter, together with that for the affiliated publications of the Penton Publishing Co., which include the *Daily Iron Trade and Metal Market Report*, *The Iron Trade Review*, *The Foundry*, *Power Boating* and *Abrasive Industry*.

As a result of this change, greatly improved facilities will be provided for transacting all of the European business of the MARINE REVIEW. Caxton House, which is one of the leading modern office buildings in London, is located in the heart of the Westminster iron, steel, marine and engineering district. It is within

a block of the headquarters of the British Iron and Steel institute, Institution of Mechanical Engineers, Institution of Civil Engineers, Institute of Metals, etc. Within a very short distance also are located the houses of parliament, British government offices and the offices of many of the largest iron, steel, shipbuilding and engineering firms in Great Britain, together with the European offices of many large American iron, steel and machinery corporations.

American business men traveling to England are cordially invited to make their headquarters at our London offices. During the coming summer season, special facilities will be available for taking care of mail, which may be addressed in care of our European headquarters. Other arrangements are being made to look after the requirements of business visitors and we hope this will be considered as a personal invitation by any of our readers, friends or advertisers who may be going abroad.

ter. The principal materials are nearby, ore of the richest kind being abundant, while the Barrow Hematite Iron & Steel Works, which commenced in 1859, has 12 blast furnaces ranged in line close to the seashore. This is one of the largest steelworks in the country.

Vickers, Ltd., is the largest shipbuilder at this port. The works of this concern is laid out in the form of a parallelogram about 100 acres in extent, with a frontage of about a mile to the sea, in two half-mile sections. The works is equipped with railways and abundant electrical apparatus for rapid production, while the launching slip in Walney channel is assisted by a 30-foot rise of tide which makes it peculiarly favorable for launching purposes. Twelve or fifteen vessels can be accommodated at one time and the works regularly employs something like 20,000 hands.

prominently in turning out big ocean-going steamers, as the demand for warships promises to be on a much smaller scale for some years to come.

### Where Naval Work is Done

The exclusion of the Thames and the London district from Lloyd's list of principal areas is due principally to the fact that the Thames is pre-eminently a government naval area. This district is, however, unfavorably situated as compared with the Glasgow and the Northeast coast districts by its distance from the steel producing centers and from the fact that the scale of wages for skilled mechanics is higher in London than elsewhere. In prewar days certain big shipbuilding companies appealed to their workpeople to place them on equal terms in this matter with their competitors elsewhere. When the men refused, these yards closed down

## Size of U. S. Shipping

American seagoing ships of 1000 gross tons or over registered for foreign trade or enrolled for the coasting trade, according to the returns of the bureau of navigation, department of commerce, on June 1, 1920, numbered 2801 of 10,681,025 gross tons, of which 1610 of 6,801,536 tons are owned by the government of the United States, represented by the United States shipping board and built with appropriations by congress. To these larger seagoing ships, smaller seagoing vessels, the Great Lakes fleets, and vessels on rivers and canals may be added, giving a total of approximately 27,900 vessels of 15,850,000 gross tons under the American flag. The precise figures for smaller vessels will not be available until returns for the end of the fiscal year, June 30, are checked.



# Expand Plans for Barge Service

**Government Officials, Aided by Generous Appropriations by Congress,  
Expect Mississippi River Line to Relieve Freight Congestion**

**F**EDERAL authorities are proceeding along their own lines in an effort to make the Mississippi river a profitable waterway for carrying freight between St. Louis and the mouth of the stream. The government is now constructing a fleet of capacious barges and high-powered towboats, designed especially for economical operation within the limitations of inland waterways. One of the six new towboats, the *NATCHEZ*, designed for service between St. Louis and New Orleans, is nearing completion at Charleston, W. Va. It is 200 feet long, equipped with two 800-horsepower engines and is capable of towing five to eight of the new steel barges. With such equipment as this, freight will be moved between St. Louis and New Orleans, up or down stream, from two to four days quicker than under present conditions.

The service by self-propelled steel barges between the Alabama coal fields and New Orleans, already is the greatest success of all the barge lines the government has attempted to establish or maintain. With these big power

boats, driven by gas-producer engines, coal has been delivered at shipside, New Orleans harbor, without going over the wharves, at 50 cents a ton less in freight charges than ever before, a considerable factor when a ship is loading several thousand tons, either as cargo or for her own bunkers. The saving, for instance, on the steamer *JOHN ADAMS*, of the Lykes Bros. Steamship Co., which took on 12,000 tons of coal for Alexandria late in June, must have been approximately \$6000 by the use of the self-propelled barges and self-propelled lighter of the Warrior river division of the government waterways system.

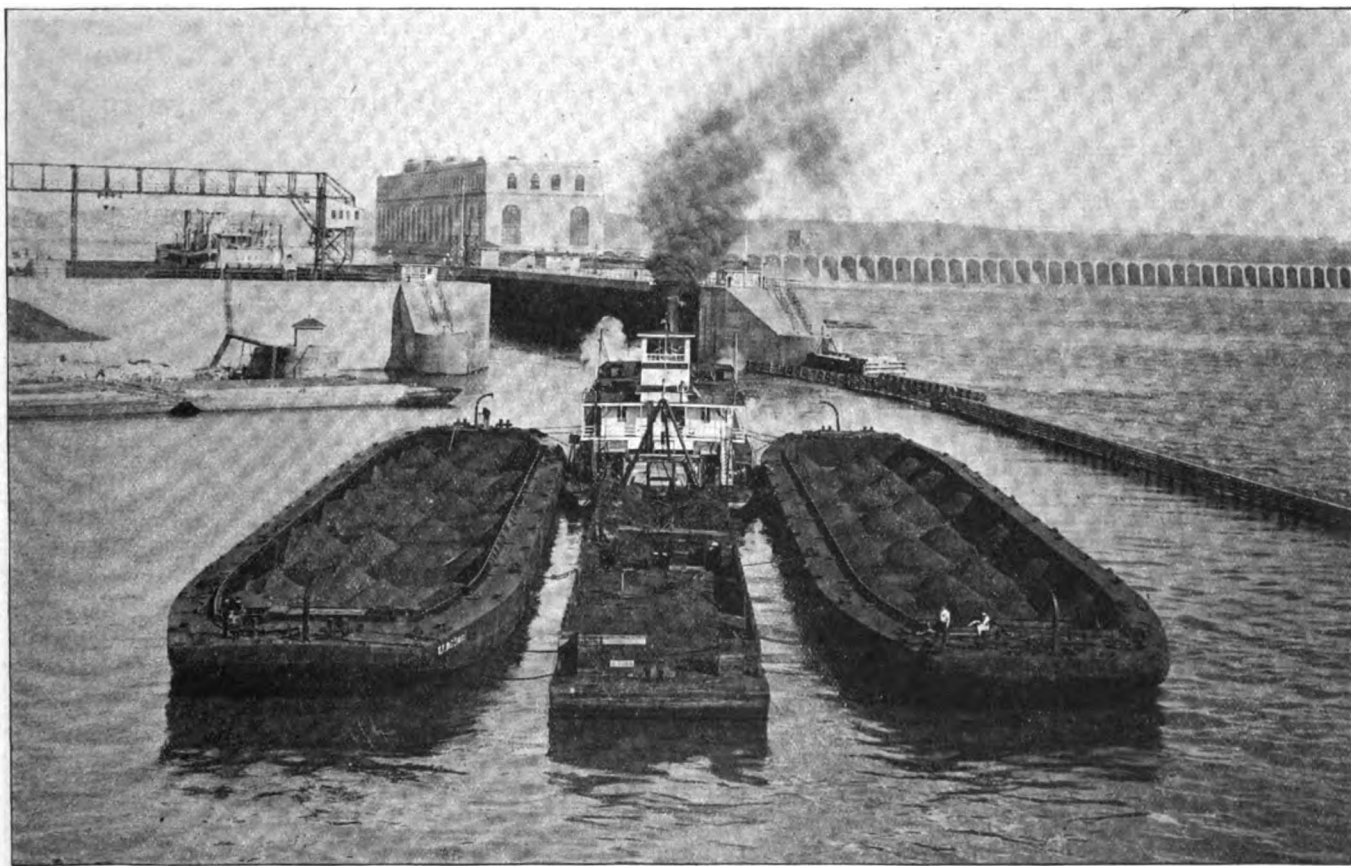
At the last session of congress, the sundry civil bill included an appropriation of \$2,100,000 for modern and fully equipped terminals designed to expedite freight from rail to barge and from barge to rail. This will not relieve local points from providing terminals for local traffic, the government appropriation being especially intended to quicken the handling of through traffic. Of the \$2,100,000 provided, \$300,000 is allotted to East St. Louis, Ill.,

where \$400,000 is now being expended on terminals; \$500,000 to Memphis, Tenn.; \$500,000 to Vicksburg, Miss.; \$300,000 to New Orleans; \$100,000 to Cairo, Ill., and \$400,000 to Mobile, Ala., at the Warrior river terminal.

The sum to be spent at New Orleans, at first glance, seems to be insufficient, but doubtless more will be forthcoming as needed, inasmuch as one great trouble with all government enterprises is to get the initial appropriation; money for upkeep and development usually comes easier.

These funds for terminal construction were made available July 1, and reports from all the ports involved indicate that work will be pushed at each point just as rapidly as plans can be drawn and approved and contracts awarded. The new equipment, including towboats and barges, is being completed rapidly, and shippers of the Mississippi valley are witnessing the beginning of an ambitious, federal effort to make the river really serviceable before the end of 1920.

It must be admitted, even by the most ardent proponents of inland waterway



FEDERAL AUTHORITIES PREDICT SUCCESSFUL BARGE SERVICE ON THE MISSISSIPPI BY THE END OF THIS YEAR

development, that the government-operated barge line on the Mississippi river has not been a paying proposition to date. As a matter of fact, no one could have expected it to pay with the initial equipment used. The government might just as well have started a train of one-horse wagons to compete with a well equipped railroad trunk line, and expected it, not only to meet expenses, but to return a profit the first year. The highly important function the Mississippi barge line has performed, however, is to demonstrate that the traffic is ready, and can be developed, if and when proper equipment is provided to handle it. The results of this experimental service, considering that, for two generations, the shippers had been educated away from the idea and the method of using waterways, were little short of wonderful.

No service which dawdled along for a week or two between New Orleans and St. Louis, lacking proper terminals, suitable facilities for handling freight and craft with power enough to haul sufficient tonnage against the current of the big river, could be expected to pay. With an improved service, properly equipped, the cost of carrying

goods will be materially cheapened and the line will be able to make a freight rate attractive to shippers. The most interesting part of it all is that the Mississippi barge line came within \$5000 of meeting expenses during the month of May, 1920, and, doubtless, the figures in the next report, will show a better result for June.

Aside from proper carrying equipment, terminals, etc., river service, to be a complete success, needs the aid of a strong government to obtain satisfactory and economical joint rail and water rates. A few of the railroads have been inclined to co-operate to make waterway transportation a success, but the majority are either openly hostile or indifferent, just as they have been to efforts to install motor truck transportation over the highways of the South. The railroads admit they are not equipped to handle their present traffic, yet many will not help to reduce that overload of traffic by co-operating with the barge lines. As river traffic develops, however, and railroad congestion is relieved, at least to some extent, by it, the hostility of the railroads may be expected to increase. It is apparent, however, that there will

be more traffic up and down and across the Mississippi valley for many years to come than all present modes of transportation can handle. All the inland waterways need to get their share and do their share is proper equipment of boats and terminals, both of which seem now to be in a fair way of realization.

### Size of Tanker Fleets

According to the *Review* of the American chamber of commerce, in Paris, in 1914, Great Britain had 200 tank ships, and now has 252; the United States in 1914 had 83 (power and sail), and now has 191 (including seven sailing ships); Germany had 46 tankers and now has 12. The world's tanker tonnage now stands as follows: Great Britain, 252 (1,300,390 tons); United States, 191 (1,003,554 tons); Germany, 12 (56,634 tons); Netherlands, 32 (80,063 tons); Norway, 15 (71,053 tons); Belgium, 7 (27,826 tons); Italy, 5 (26,183 tons); France, 4 (20,269 tons); Russia, 2 (7200 tons); Mexico, 1 (5251 tons); Spain 1 (672 tons); Roumania, 1 (3051 tons); Denmark, 1 (6516 tons); total, 524 (2,608,762 tons).

## News of Important Business Societies

### Naval Architects to Meet

The Society of Naval Architects and Marine Engineers will hold its twenty-eight general meeting on Thursday and Friday, Nov. 11-12 in the West Thirty-ninth street., New York. The annual banquet will be held at the Waldorf-Astoria on Friday evening. Daniel H. Cox, secretary-treasurer of the society, now is formulating the program for the meeting.

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### Marine Draftsmen

The American Society of Marine Draftsmen held its ninth annual convention in Washington, at the Harrington hotel, June 18 and 19.

A new grade of membership was established to be known as "associate." This grade of membership will admit men occupying positions "of responsibility in the manufacture or sale of equipment and in the operation of ships." The junior grade of membership was enlarged to include "students of marine engineering or naval architecture" at recognized technical schools.

The date for the annual convention was changed from June to September in order that the convention should follow the summer recess period of the various

branches of the society and usher in the season of winter activities.

The convention indorsed the report of the congressional joint commission on reclassification of government employees, and decided that the society should use its influence to urge its early adoption.

The afternoon session of the second day was devoted to the reading of papers. James L. Bates, Washington, read a paper entitled "Notes on Preliminary Design," and E. Kirwan Jr., of the Bethlehem branch, read a paper prepared by C. J. Early, Bethlehem, Pa., on "Joiner Work—Its Relation to and Use in Shipbuilding."

The District of Columbia branch took the delegates and executive committee on a moonlight ride down the Potomac river on Friday night. On Saturday night the convention was closed with an informal banquet for the visiting members.

The society expects to start an active campaign for new members in the fall and J. B. Sadler, Norfolk, Va., was made chairman of the committee having charge of the drive.

Charles E. Deiser, of the Delaware River branch, Philadelphia, was elected president; E. H. Monroe, Washington, was elected vice president, and the re-

tiring president, A. H. Haag, Philadelphia, was elected executive committeeman for a term of three years.

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### Japanese Shipowners

Shipowners of Japan have organized the first representative association of Japanese vessel owners. The old Japanese Shipowners association of Kobe has been reorganized as the Nippon Senshu Kyokai (Union of Japanese Shipowners). Representatives of the Nippon Yusen Kaisha, the Osaka Shosen Kaisha, the Toyo Kisen Kaisha, the Mitsui Co., the Mitsubishi Co., and 14 other large shipping companies were elected to the management of the new society.

The former association included 77 relatively small shipping firms, whose total fleet consisted of 358 ships of 746,090 tons. The larger steamship companies were not members of this association and had no organization for joint effort. Recent slumps in the shipping situation developed the need for a representative organization and brought the three largest Japanese companies, the Nippon Yusen Kaisha, Osaka Shosen Kaisha, and the Toyo Kisen Kaisha, into the new society. The new association has a membership of 101 companies, who own 734 vessels of 2,175,847 tons.

# Activities of American Shipyards

## Dismantle Big Plant at Seattle—Destroyer on Trial Trip Sets New Speed Record—Plans Big Dock

**W**ORK of dismantling the great steel shipbuilding plant of the Skinner & Eddy Corp., Seattle, has begun and within a short time this famous yard will pass into history. The firm has decided to retire from shipbuilding. No definite announcement has been made as to the disposition of the site. The shipbuilding equipment and machinery have been sold to the Barde Industrial Corp., New York and Portland, Oreg. It is expected that the site will be used as a great shipping terminal as it has decided advantages for that purpose. The yard is equipped with a permanent 790-foot pier with deep water berthage on both sides as well as with an 870-foot quay. These terminals are well served by railroad trackage and it is expected that they will be used as the nucleus of a great steamship terminal. The land is among the most valuable parcels in Seattle's industrial center. The price paid by the wreckers is reported to be about \$1,500,000.

Completing its program of commercial shipbuilding for the government, the Todd Shipbuilding & Dry Dock Co., Tacoma, Wash., on June 17 launched the 7500-ton steel steamer *ROTARIAN*, the last shipping board hull building in the Pacific northwest. The event was a gala occasion and was attended by a large gathering of officials and guests. The vessel was named in honor of the Rotary clubs of America. The Rotarians presented the ship with a handsome bronze name plate. The same company is completing the 7500-ton steel steamer *PANSA* which has been assigned by the shipping board to Williams, Dimond & Co. to load lumber and general cargo for Calcutta and other ports in India.

The 8800-ton steel steamer *INDUS*, hull No. 16 of the John Coughlin yards, Vancouver, B. C., has been launched and will shortly be completed. This vessel was originally laid down on builder's account but she and a sister vessel, have been sold to Swedish owners.

Fourth product of the Anderson shipyards on Lake Washington, Seattle, the wooden motorship *MURIEL* was launched June 26. This yard took contracts for four wooden vessels. The first two were sold by the owners to French interests. Later the plant encountered financial troubles and the last two hulls were completed and launched

under a reorganization. The third hull, the *DONNA LANE*, is now being fitted and will shortly be ready for service.

The 9600-ton steel steamer *ANTINOU'S* was launched at the G. M. Standifer Shipbuilding Co.'s yards, Vancouver, Wash., on June 22. This vessel is the fourth built by this company for the Green Star line, the first two now being enroute from Seattle to Oriental ports under management of Struthers & Dixon.

The buildings and miscellaneous equipment of the Wright shipyards, Tacoma, Wash., have been sold to wreckers, thus marking the passing of another wood shipyard. The ways and buildings will be razed. This plant turned out several Ferris-type steamers for the government during the war emergency.

The Northwest Bridge & Iron Co., Portland, Oreg., announces that it has contracts for building seven 12,000-ton tankers for the Swiftsure Oil Transport Co. These will be the largest vessels ever constructed on the Willamette river. The keel of the first vessel was laid early in July.

Legal steps have been taken to dissolve the Ballard Shipbuilding Co., Seattle, which built the wooden steamer *H. B. LOVEJOY* and several smaller craft. The same owners are operating a marine ways but intend to retire from shipbuilding.

Suit to recover \$420,000 alleged due as commissions has been started by Smith & Paschall, brokers, against the Seattle-North Pacific Shipbuilding Co., Seattle, and C. J. Erickson, its founder. The plaintiffs allege that in June, 1917, they were retained to obtain contracts for steel vessels and claim they assisted in negotiating for 10 ships through the Clinchfield Navigation Co., New York. The contracts were for the shipping board and the plaintiffs base their commission on the contract price of \$16,800,000.

On the ground that the federal court has no jurisdiction and that the Emergency Fleet corporation has machinery for settling claims of shipbuilders, government attorneys are seeking a dismissal of the suit against the Fleet corporation of the Sloan Shipyards Co. The Sloan interests are asking damages amounting to \$3,220,000, represented as profits had the government not seized the company's yards at Olympia and Anacortes, Wash., where

wooden steamers were being built. Conducted properly, the plaintiffs claim, the construction of the 16 wooden vessels for which contracts were held, would have returned profits of \$1,200,000.

Following a decision to retire from steel shipbuilding, officials of the Seattle-North Pacific Shipbuilding Co., which built ten 9600-ton steel steamers for the Emergency Fleet corporation, are selling the machinery and equipment of the plant. After the shipways have been razed, some of the smaller buildings and all shipbuilding machinery removed, it is planned to use the site for industrial purposes. While the plans of the owners have not been disclosed it is believed that Twohy Bros., who recently acquired the entire holdings of the company, will engage in the manufacture of railroad cars and equipment. Twohy Bros. have long been identified with railroad construction and the site offers splendid advantages for building railroad rolling stock. The plant lies on the Duwamish river, Seattle.

## Deliver Passenger Ships in 1921

First deliveries of the passenger liners being built for the shipping board are scheduled for January, 1921. This new fleet of passenger ships numbers 26 vessels, 19 being 535 feet long, 18 knots speed and 13,000 tons deadweight. Seven smaller ships are 520 feet long, 14½ knots speed and 13,000 tons deadweight. All of the smaller vessels and nine of the larger are being built by the New York Shipbuilding Corp., Camden, N. J. The Newport News Shipbuilding & Dry Dock Co., Newport News, Va., is building two and the Bethlehem Shipbuilding Corp., Sparrows Point, Md., eight of the larger vessels.

Delay in delivery of these vessels is laid to numerous changes in design. The ships were first ordered as transports, altered to serve as hospital ships, finally being converted into passenger and freight vessels. The New York company has launched four of the 18-knot steamers, *WENATCHEE*, *SEAGIRT*, *AMERICAN LEGION*, and *KEYSTONE STATE*. The same yard has launched three of the 14½ knot ships, *PANHANDLE STATE*, *OLD NORTH STATE* and *CREOLE STATE*. The five other fast steamers have been named *LONE STAR STATE*, *EMPIRE STATE*,



HOOSIER STATE, BAY STATE, and PENINSULA STATE, while the four additional smaller vessels will be called WOLVERINE STATE, GRANITE STATE, CENTENNIAL STATE, and BLUE HEN STATE. The Newport News plant is building the GOLDEN STATE and SILVER STATE, the first to be delivered Feb. 1, 1921, and the latter in June of next year. The Bethlehem yard is building the HAWKEYE STATE, BUCKEYE STATE, PALMETTO STATE, PINE TREE STATE, COTTON STATE, BLUE GRASS STATE, NUTMEG STATE and SUNFLOWER STATE.

The first 10 of these ships delivered will be assigned to Pacific coast lines, five to the Pacific Steamship Co., for

## Destroyer Breaks Record

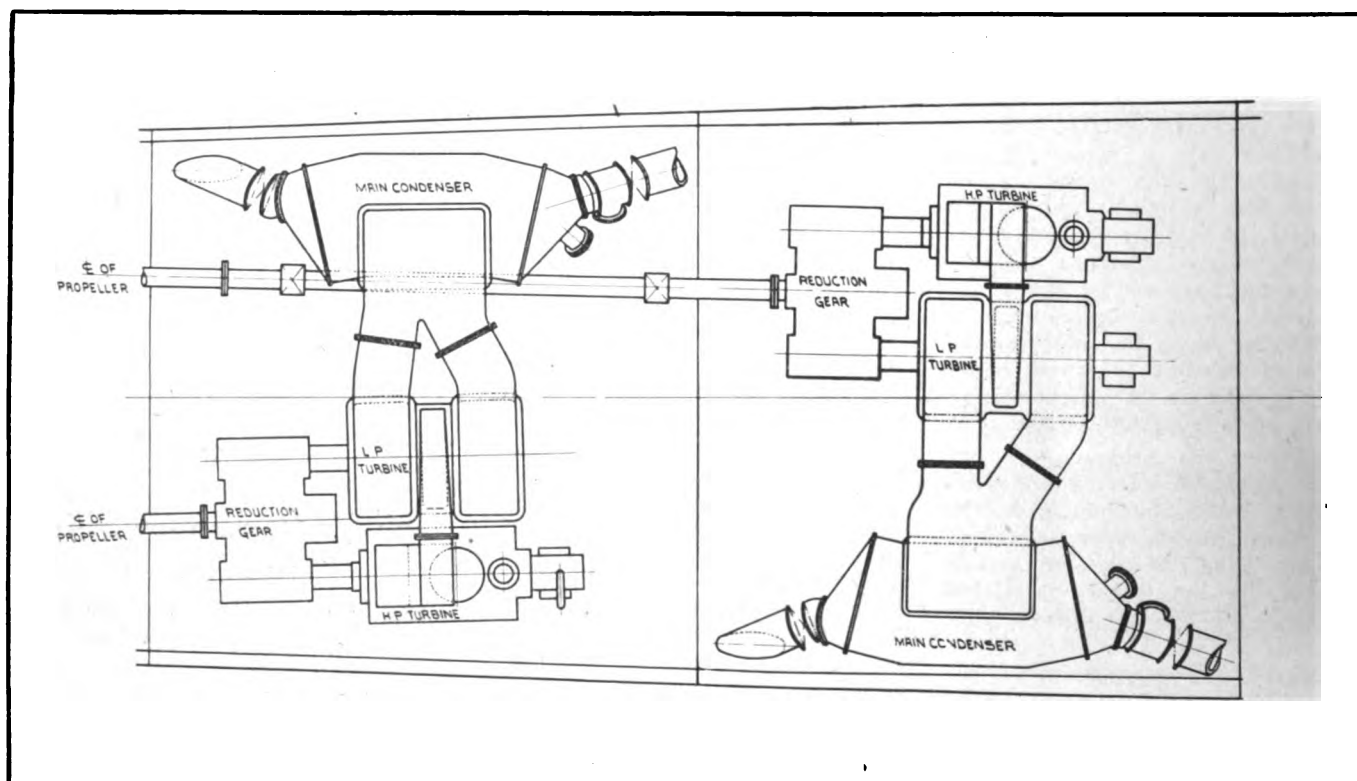
All American speed records were broken by the destroyer SATTERLEE, when she made a mile in 38.257 knots and averaged 37.272 knots in her five top-speed runs, in her standardization trials, held off Rockland, Me., on June 8. The best previous record is 37.04 knots, held by the destroyers DENT and WICKES.

The SATTERLEE was built by the Newport News Shipbuilding & Dry Dock Co., Newport News, Va., and is one of the latest class of 1200-ton destroyers. Her engines consist of two Westinghouse 14,000 horsepower turbines, each of which drives a propeller through

is said to be exceptionally good, being below 1 pound of fuel oil for a shaft-horsepower-hour.

## Aid Canadian Yards

Government assistance for Canadian shipyards is being considered by the dominion authorities. Representatives of shipbuilders of the maritime provinces, Quebec, Ontario and the Pacific coast have just called on Premier Borden and cabinet members at Ottawa, Ont. A large shipbuilding contract has been offered by foreign interests provided the Canadian government will assist in financing the construction during the present un-



ENGINE ROOM OF DESTROYER SATTERLEE SHOWING ARRANGEMENT OF THE TWO COMPOUND TURBINES, EACH DRIVING A PROPELLER THROUGH A 2-PINION FLOATING FRAME REDUCTION GEAR

service between Seattle, China, Japan and Vladivostok; five to the Pacific Mail Steamship Co. for service to Manila, Hongkong, and probably India. The Matson Navigation Co. will receive two for service from San Francisco to Hawaii. The Munson line has requested allocation of two of the larger vessels for service to South America. The remainder of the ships are expected to be assigned to European, Australian, Mediterranean, Caribbean and West African routes.

According to official statistics, the Swedish commercial fleet consisted on March 31 of 2691 vessels of 1,015,730 tons, these comprising 1230 steamers of 873,490 tons, 436 motor vessels of 104,598 tons, and 1035 sailing ships of 112,924 tons.

a floating-frame gear that reduces the rated turbine speed of 3050 revolutions per minute to 452 revolutions per minute for the propeller. The power actually developed by the SATTERLEE was, however, 31,223 horsepower which forms another record for this class of vessel, and the maximum speed of her propellers was 486.04 revolutions.

Each of her turbines consists of two elements—high pressure and low pressure—which drive the propeller through a single 2-pinion gear. Either element can be used independently of the other, in an emergency, so that if one element should be out of commission the vessel can still proceed, though at reduced speed. An astern turbine, giving 25 per cent ahead power, is incorporated within each turbine element. The fuel economy of the SATTERLEE

favorable conditions of exchange. Two forms of assistance to shipbuilding have been outlined. The first is the granting of a subsidy of \$10 per ton of displacement and \$10 per indicated horsepower. The second is for the government to assist in financing foreign contracts.

One of the best known lighthouses on the Atlantic coast, Barnegat light, is to be demolished. The lighthouse bureau, Washington, has decided that the cost of repairing this structure will be prohibitive so it is to be replaced, probably by a lightship and a beacon light at the bay entrance. This light which is the first to be seen by transatlantic travelers coming to New York has been undermined steadily by tides.

## Buys Manitowoc Yard

Charles C. West, vice president and manager of the Manitowoc Ship Building Co., Manitowoc, Wis., recently purchased the plant of this company at public auction on a bid of \$410,000. He is now perfecting an organization to take over and operate the plant, the new company probably including a representative group of officials of the older firm. The Manitowoc yard is excellently adapted for ship construction and repair, having not only built large lake freight and passenger ships, but having constructed a number of ocean going vessels during the war emergency. Considerable expansion of facilities was made during the war,

11,628,836, have been delivered. Of the 2289 keels laid, 1286 were contract steel ships, 384 were requisitioned steel ships, 18 were composite, 589 were wooden and 12 were concrete. To complete its original program, the Emergency Fleet corporation has to have the keels of only 26 steel ships laid. The following number of ships must be delivered before the corporation's program has been filled: 220 steel, 18 wooden and six concrete.

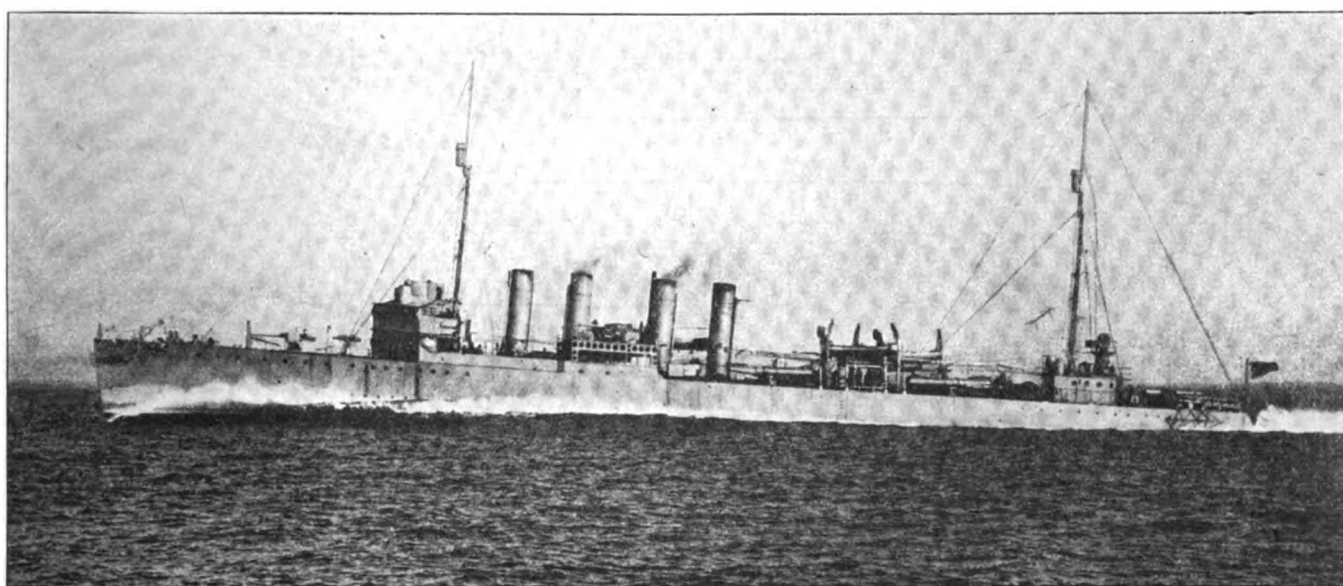
## Study Ship's Details

Standardization of ships' details is being considered by British engineers. Eight different committees now are

## To Build Drydock

Construction of a floating drydock capable of lifting a 12,000-ton vessel is announced by the Federal Shipbuilding Co., Kearny, N. J. The dock will be placed in the fitting-out basin of the company at its plant on the Hackensack river, near the head of Newark bay. About \$1,500,000 will be invested in the addition, including the cost of two tugs and some additional plant facilities made necessary. The dock itself will be built with steel wing walls and wooden pontoons, and will take ships up to 425 feet long.

The dock will help stabilize operations at the shipyard, providing steadier employment for the plant, and the working force of about 6000



DESTROYER SATTERLEE WHICH ESTABLISHED NEW AMERICAN SPEED RECORD ON HER TRIAL TRIP

giving rise to the problem of re-financing the company on a basis which would permit successful operations under normal conditions.

## Status of U. S. Program

Emergency Fleet corporation ship deliveries in June totaled 31, of a deadweight tonnage of 215,658. Twenty-six of the ships, of 190,158 tons, were steel; three, of 4000 tons, were wooden, and two steel ships, of 21,500 tons, were requisitioned. In the first week of July, the keels of four steel ships, of 37,000 tons were laid; one steel ship of 5350 tons was launched, and two ships with a combined tonnage of 11,500 tons were delivered.

In the entire history of the Emergency Fleet corporation, it has had laid the keels of 2289 ships, with a tonnage of 13,380,811; 2195 ships, with a tonnage of 12,516,386, have been launched, and 2071, of a tonnage of

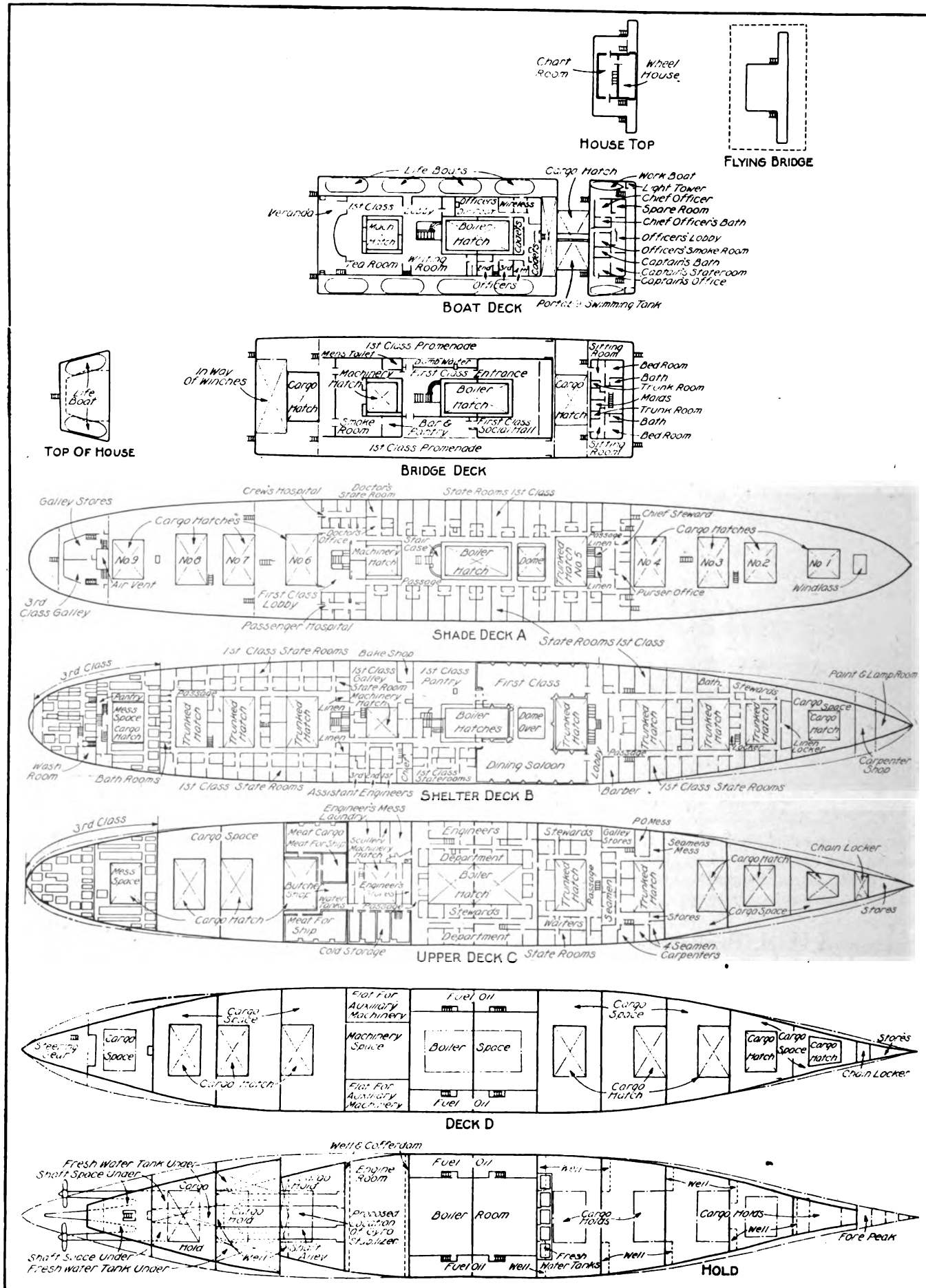
at work on the following details: 1—bollards, fairleads, and mooring pipes; 2—hawsers, ropes, rigging screws and rigging gear; 3—boat davits, derricks, derrick fittings, stanchions, all ladders and ladder fittings; 4—windlasses, capstans, winches, steering gear and deck machinery; 5—deck and hatch fittings, watertight doors, manhole covers, sidelights, ventilators, bunker and coal fittings; 6—cabin fittings, beds and electric light fittings; 7—sanitary fittings and all piping and pumping arrangements; 8—anchors, cables and chains.

Completing a trip which took the vessel from Japan to Wilhelmshaven and Bremerhaven, Germany, through the Suez canal with 943 prisoners of war, and from Germany to New Orleans and thence to Seattle for cargo for Japan, the Japanese steamship KIFUKU MARU has sailed for Kobe, Japan.

men, who are now engaged in building ten 10,000-ton freighters for the United States Steel Corp., and five 15,000-ton tankers for the Standard Oil Co. of New Jersey.

With the new equipment, the Federal company expects to take care of the drydocking and repair work of the fleet belonging to the Steel corporation. This fleet includes 14 large steel steamers now in operation, and 20 more under construction at the Federal yard and at the plant of another subsidiary, the Chickasaw Shipbuilding Co., Mobile, Ala. In addition to this work, the plant will do a general drydocking and repair business.

On June 5, the shipping board owned and controlled 956 contract steel vessels; 205 requisition steel vessels; 271 wooden composite vessels; 4 concrete vessels; 24 purchased vessels; 31 seized German and Austrian vessels; 2 chartered from Peru.



DECK PLANS OF NEW AMERICAN-BUILT PASSENGER LINERS



# How New U. S. Liners Are Fitted

## Excellent Accommodations Are Being Provided on Passenger Ships Under Construction for Shipping Board

**P**LANS for fitting out the only passenger vessels built by the Emergency Fleet corporation, have been completed. Splendid accommodations are to be provided for persons sailing under the American flag, and every possible arrangement has been made to prove that American service on the high seas can be just as comfortable and inviting as service under any other flag.

When the first of these hulls was launched last year, the *MARINE REVIEW* published in the issue of July, 1919, a detailed account of the hull and engine structure. This article describes the passenger accommodations.

The Emergency Fleet corporation is building 19 passenger vessels in all, 12 of one size and seven slightly smaller, but all of which have been planned along similar specifications.

The larger vessels measure 535 in length, over all, have a 72-foot beam and are 50 feet deep. They are commonly spoken of as 13,000 deadweight ton vessels, although the displacement is 20,800 tons. Each ship will be capable of transporting approximately 10,000 tons of cargo. They will be oil burning and carry their bunkers in the cellular bottom, giving a steaming radius of 11,000 miles.

The ships are twin-screw and will be capable of making 17½ knots, which will make it possible to reduce by several hours the run of 21 days from New York to Buenos Aires. Each vessel will have accommodations for 200 first class passengers and 300 third class. No second class accommodations will be provided. The vessels are equipped to accommodate 33 men in the deck department, 46 men in the engine department and 117 stewards, with a spare room additional for the company use.

Each vessel has four complete decks, a shelter deck and a full shade deck. In addition, there is a bridge deck, upon which are located the first class social hall and the first class smoking room, and a boat deck with the officers' quarters. The general plans place the first class dining saloon on the shelter deck, but the Munson line has requested that this be moved up to the shade deck. The promenade for first class passengers on the bridge deck will be enclosed by patent balanced windows and have portable screens at the forward end of the enclosure. The

floors in public spaces will be quarter sawed maple, matched, with finished borders. Hand rails in all rooms and in the passages, including public and staterooms will be mahogany. A patented material will be used for paneling in all large area surfaces, soffits, ceilings and walls.

The tea room will have its walls covered with lattice and slat work. This room is placed on the boat deck, upon which will also be found the writing room. An ornamental iron barrel vaulted dome is placed inside of the skylight over the main stairway.

The social hall and smoke room are on the bridge deck, and adjoining the smoke room is the bar. The smoke room will be ornamented with moldings made of composition. The doors will be veneered and have inserted glass with wooden muntins. This room will have a fireplace mantel. A fireplace mantel will also be placed in the social hall, and the ceilings are to be decorated with turned rosettes.

The bridge deck suites will have full length, beveled edge mirrors in the doors to baths and showers. These suites will have electric heating and ventilating fixtures. The dining saloon will have a fore and aft barrel vaulted ornamental iron dome.

### Provide High Grade Furniture

All furniture will be of the first class. Tobacco or Honduras mahogany furniture will be fitted into the first class quarters. This will include all tables, mirrors, bureaus, bed racks, thermos bottle brackets, chiffoniers, lavatories, etc. In addition wicker chairs, enameled moss green, with seat and back cushions will be provided. The settee berths and wardrobes are to be built in. The settee berth cushions will be upholstered in tapestry. The berths will have hair mattresses. Nickel-plated brass curtain rods with hanging curtains of white, heavy, homespun linen carrying a colored design will be used. Brussels carpets are planned in the small rooms and Wilton carpets in the larger rooms.

The elliptical bay in the tea room will be fitted with a combination seat. This room is to be equipped with wicker tables, enameled copper green, with heavy plate glass top over cretonne. Large wicker easy chairs and wicker table chairs upholstered in cretonne and tapestry, all enameled copper green, and wicker electric lamps are to

be provided. The window hangings will consist of concealed Pullman blinds. The floor is to be covered with colored rubber tile, and flower boxes will complete the equipment.

Mahogany chairs upholstered in imitation leather are to be placed in the boat deck lobby outside the writing room. A built-in settee also is to be installed. The window hangings will be heavy cretonne with valances of the same material. Semieasy chairs and hangings of the same design are provided for the writing room. A large cluster writing desk is to be placed in the center of the room to seat six. A dictating and stenographer's desk is provided, as well as small writing desks, each equipped with an electric lamp.

The walls and ceiling of the ladies rest room will be covered with silk tapestry in light rose pink. This room will be equipped with a built-in sofa, upholstered in tapestry. Both the tea room on the boat deck and the smoke room on the bridge deck will have a veranda, finished alike.

The smoke room will be equipped with heavy mahogany sofas of three different sizes. Four different sizes of tables of heavy mahogany, as well as built-in tables, will be provided. The window hangings are to be of solid color velour with a lambrequin at the top mounted on buckram with a fringe at the bottom. The bar and pantry will be decorated to match.

The window hangings in the entrance hall will be velour. This hall is to be furnished with flower boxes and wicker easy chairs. The chairs in the social hall will be mahogany in one design, hand carved and upholstered in tapestry. Two sizes of mahogany sofas, three sizes of mahogany tables, and a grand piano in a mahogany case are to be installed. In addition, there are to be built-in lockers, seats and bookcases. The flower boxes will be terra cotta.

The private suites will be equipped with a mahogany writing desk, dressing table, bed, bench and bureau. The beds will have special box springs and long hair mattresses.

The doors to the dining saloon, on both sides, will have a complete mounting of imitation leather. Built-in serving tables and sideboards of heavy mahogany will be used. The dining saloon will be equipped with both round and square tables, of heavy mahogany, firmly fastened to the deck.

# British Ships Face New Problems

English Owners Now Realize More Clearly Importance of Radical Changes Brought About by War

BY CUTHBERT MAUGHAN

*Shipping Editor, The Times, London*

EVENTS and tendencies during the past three months have been expressive of the gradual adaptation of British shipping to the new conditions created by the war. It is necessary to insist upon the phrase "new conditions." Some of the most far-sighted British shipping managers have shown that they appreciate the situation. Any suggestion that England might be returning to prewar conditions would show a complete lack of appreciation of all that has happened during the past six years. The abandonment or dwindling of trade in some of the old routes, the institution of new routes, the destruction of seven million tons of British shipping, the construction of new types of vessels, the enormous growth of the mercantile marines of other nations, the ownership of shipping on a large scale by governments, the falling away of the British export coal trade, the high price of bunker coals, and the increasing attractions and the scarcity of oil fuel, these are developments which make for the creation of the new shipping situation.

At the outset, it seems extremely desirable to point out that, in order to give any fair idea of the influences at work, the generic term "shipping" is altogether too wide. Readers of the *MARINE REVIEW* do not need to be warned of the classes into which shipping chiefly falls. Nevertheless, I am constantly finding that the lay public—including some of the best educated and intelligent members—have no clear conception of the distinctions. Journalistic colleagues have sometimes accused me of writing what is apparently conflicting when one has been describing increased freight decisions by the liner companies and, at the same time, stating that the time charter rates or voyage rates for cargo steamers are declining or may be expected to fall. The proper subdivision seems to me to be to divide British shipping into three main classes: (1) Ordinary cargo steamers, frequently and rather brutally termed "tramps"; (2) Cargo liners; and (3) Passenger and mail liners. In this and future articles, this subdivision will be adopted.

In giving pride of place to ordi-

nary cargo steamers, one remembers that the owners of these vessels consider that in the past they have proved the backbone of British shipping. They are the ships which have carried from Britain the coal cargoes which, before the war, represented the main bulk export cargo from the United Kingdom. They carried these cargoes to the Mediterranean, the coaling stations dotting the oceans, and to South America. On their return voyages, they brought among many other cargoes, grain from South America and India; grain and cotton from North America, and ore from Scandinavia and Spain.

## Tramps That Work

The word "tramp" is really unfair, because by the term tramp is understood an individual who cannot claim to earn a respectable living by honest work. No such charge could be leveled against the ordinary cargo steamer. It is true that she is "dealt in" on the Baltic Shipping exchange and other freight markets of the United Kingdom just like any other commodity. Owners, in return for the use of their ships and the provision of crews and stores, receive fixed rates of freight, either for single voyages or for certain periods, the rate varying according to the all-powerful law of supply and demand. The movements in these rates varied from day to day in prewar times just like the prices of securities fluctuated on the stock exchanges.

During the war, the occupation of ship brokers in arranging charters on behalf of owners and merchants was taken from them. Practically all British vessels were requisitioned by the government and the work of directing their voyages devolved upon the large staff of officials at the ministry of shipping. Brokers are only now picking up the threads of their business again. The voyages of many vessels are still directed by the government.

After the armistice, the liner companies found themselves unable, with seriously depleted fleets, to carry all the cargo they were offered. The discrepancy was especially noticeable in the North Atlantic trade. The Cunard company, for instance, was known

to have chartered a large amount of cargo steamer tonnage to supplement its own vessels. The usual rate at the beginning of the year for British steamers was 30 shillings per ton deadweight per month. It was on this basis that certain new shipping companies issued prospectuses. They pointed out that such a rate was profitable. There seems every reason to suppose that it was. Beyond providing the ships, and the crews and the men, the owners had no responsibility. The cost of coal, the payment of harbor dues etc., and the risk of delays in port all fell upon the charterers.

The failure of British ports to export coal fundamentally affected the employment of British vessels. The owners of these ships could no longer rely upon outward cargoes when they dispatched the vessels to bring back to Europe full cargoes of foodstuffs. Many months ago, the British shipping controller insisted on the importance of the export coal trade. His whole career as a shipowner until the war was spent mainly in insuring that his ships were provided with coal cargoes on the outward voyage and that they brought home full cargoes of foodstuffs and raw materials needed in this country. Incidentally he had the reputation of knowing at least as much about cargo steamship management as any owner in the country.

When owners found that coal cargoes were not available in this country, the gravest fears for the future of British shipping were expressed. Later, they began to realize that the necessity of bringing coal cargoes longer distances had certain compensating advantages. The chief new coal exporting country has, of course, been the United States. Instead of making the short voyages from the United Kingdom to the Mediterranean, ships have been required to cross the north Atlantic and have not been insured of cargoes on their return voyage. South Africa was regarded until the war merely as a bunkering center; lately she has been sending coals to the Suez canal and Mediterranean ports; India has also been exporting on a large scale and, as has already been described in the

MARINE REVIEW contracts have been made for the shipment of coals from Australia to Europe. These long voyages have undoubtedly tended to maintain freight rates and have counteracted, to a considerable extent at any rate, the production of a large amount of American cargo steamer tonnage.

Within the past few weeks, following upon reports of congestion in United States coaling ports the demand for tonnage to load in North America has fallen away. The time charter rate gradually slipped to 25 shillings a ton and for a long time remained at this level. The liner companies were chartering very little and the rate frequently was barely tested. Then, during the week ended June 12, owners of certain ships appeared anxious to charter their vessels. They had to cede a drop in the rate and steamers were chartered at 20 shillings a ton. Good judges calculate that the running expenses of ordinary cargo steamers, excluding coal, but allowing a percentage for office and management costs, may be estimated at 10 shillings a month. A freight of 20 shillings should therefore, leave a profit to the owners of 10 shillings a month. This on a steamer of 8000 tons deadweight represents a profit of £4000 per month. Of course, many owners have got accustomed to such high freights that many would not consider this extraordinarily attractive. Some experienced authorities are, indeed, quite prepared to see the rate fall further yet. Indeed, a report has just been heard of an owner having offered to charter a steamer at 17 shillings, 6 pence per ton. A rate of 15 shillings a ton is freely spoken of as likely to obtain before the autumn is far advanced.

In the autumn, there would normally be an increase in the demand for tonnage to load crops for Europe, so that if there is any further easiness, as many expect will be the case, it should be apparent during the remaining summer months. It will be seen that on the basis of working expenses of 10 shillings a month, a time charter rate of 15 shillings would still leave the owner a profit of £2000 a month on a steamer of 8000 tons deadweight. This time charter rate may be regarded as the best barometer of freight markets. If an owner can secure the vessel at a lower time charter rate, then he should be able

to carry for a single voyage at a lower rate. Ultimately, a drop in the time charter rate may be expected to have effect on the freights of the liner companies which charter them.

Cargo liner conditions are different. Long before the war these liners were gradually encroaching on the work of the ordinary cargo steamer. The tendency has been to provide regular sailings according to timetables. All the great liner com-

and the South African merchants came to an agreement respecting rates. This agreement could only be altered by mutual approval. In April of this year the shipping lines approached the South African merchants with a view to an increase in rates. An advance of 10 shillings per ton was agreed to by the merchants on the ground that, as the cost of coal had advanced very considerably, it was only reasonable.

On the other hand, no advance has been made this year in the cargo rates to Australia, although during the past quarter the Australian shipping lines have issued a new bill of lading increasing their liability for packages lost from £5 to £10 a cubic foot, with a limit of £200 per packet, and accepting increased responsibility for the carriage of goods in accordance with Australian legislation.

For some months past, a committee of merchants has been consulting with ship owners on the question of a simple uniform bill of lading. The meetings soon showed that this ideal could not be obtained. A joint report which has now been issued by the merchants and the shipowners has made this conclusion clear to all.

The question of bills of lading was brought to a head by the prevalence of a serious epidemic of pilferage. Although a large proportion of the claims are paid by shipowners, a certain proportion falls upon the merchants and their marine underwriters. Within the past few weeks, underwriters have required the risk of pilferage to be treated as a risk distinct from ordinary marine perils, and they have also required merchants to retain 25 per cent of the liability. The

merchants and owners, in their joint report, emphasize the gravity of the pilferage problem. Meetings are still being held by merchants, owners, and underwriters in order to devise means of coping with the trouble. The prevalence of pilferage has undoubtedly cost the shipowners much during the present year and it has received a great deal of attention from ship managers. In the port of London, a special police court has been organized by the shipping lines and is known to have done much good. Losses, however, still continue to be reported frequently from ports in the United Kingdom and throughout the world.

While pilferage has been causing the cargo liner companies much

### British Shipping Index

#### PRICES OF REPRESENTATIVE SHIPPING SECURITIES IN SECOND QUARTER

	Highest £ s d	Lowest £ s d	Date
Cunard shares par £1.....	2 1 10½	1 8 9	April 1 June 14
Furness, Withy shares, par £1 .....	2 11 3	1 13 9	April 1 June 1
P. & O. de- ferred £100 stock ....	561 0 0	435 0 0	April 7 June 15
Royal Mail S. P. Co. £100 stock ....	186 0 0	117 0 0	April 6 June 15

#### SHIP CONSTRUCTION FIGURES FOR UNITED KINGDOM IN SECOND QUARTER OF 1920

(Delayed: Not available July 15)

	No.	Gross tons
Tonnage launched .....		
Tonnage commenced .....		
Tonnage building, June 30		

#### SHIPPING MANAGEMENT FACTS SECOND QUARTER 1920

	Highest £ s d	Lowest £ s d
Time Charter Rate: Ordinary British Cargo steamers per ton D. W. per month.....	1 4 0	17 6
Voyage Rates:		
Plate—U. K. grain, per ton*.....	5 7 6	5 7 6
Australia—U. K. grain, per ton*.....	7 10 0	7 10 0
Cuba—U. K. sugar, per ton*.....	4 5 0	4 5 0
Fuel		
Coals: Best Welsh large at S. Wales, per ton... 4 0 0	4 0 0	4 0 0
Oil: Per ton at Port Said.....	15 0 0	15 0 0
Wages: A. B. seamen per month†.....	11 10 0	
Boatswains per month†.....	15 0 0	
Firemen per month†.....	12 10 0	

\*These rates are government rates for directed voyages and have not been altered.

†These rates are fixed by the national maritime board on which the ministry of shipping, owners and seamen are represented.

panies have cargo liner services. Notable exponents of this policy are Messrs. Furness, Withy & Co., Ltd., and the Ellerman lines. The advantages of amalgamation are especially noticeable in the case of the cargo liner services. Managements which control several fleets are able to transfer the vessels from one route to another as circumstances and requirements demand.

The rates of the cargo liner companies are usually determined for long periods, notice of any change being given to the merchants. In some trades, especially the Australasian and South African, the merchants are well organized. In the spring of last year, the shipping lines

trouble, another great anxiety has been that of securing adequate supplies of bunker coal. In the United Kingdom the so-called zone system applies. Vessels are required to take coal from particular centers. Thus South Wales has been called upon to supply Liverpool, London, and the ports of the south coast, whereas before the war, coal was largely supplied by the north east coast. Restrictions regarding bunkering have greatly handicapped managers of cargo liners during the past quarter. There is, for instance, a regulation requiring that vessels shall only bunker at their last loading port. This has prevented, in some instances, owners sending their vessels to particular ports. The coal problem became so serious that owners were able to interest merchants at the London chamber of commerce in the matter. Sir Robert Horne, who has succeeded Sir Auckland Geddes as president of the board of trade, has shown that he appreciates the extreme importance of adequate coaling facilities for shipping.

#### Hope For Coal Price Cut

It was shown in the June issue of the MARINE REVIEW that the collieries had agreed to some reduction from the fabulous charges which were being levied for coal. As from March 24, the rate for large coal in South Wales was reduced to 80 shillings per ton. Industrial works were able to get their supplies at about half that rate. There is reason to believe that the board of trade has approved of coal for bunkers being placed on the same basis as coal for industrial works. Effect has not yet been given to this decision, but the arrangement is expected to be provided for shortly by legislation. When this is done shipping companies will be insured of regular supplies at lower prices. A rate of 45 shillings per ton is being spoken of in well informed quarters as probable. By such a plan, shipping managers will be relieved of a load of anxiety. It has not been so much the high prices charged as the difficulty of getting supplies which has worried them. Delays in port to ships while waiting for coal have been extremely serious.

The problem of oil fuel has not yet come to be vital for the cargo liner companies. The number of such British vessels which burn oil fuel is comparatively few. Some owners took the precaution of fitting their vessels to burn either coal or oil, although this policy is open to criticism on the ground that it does not enable full advantage to be taken of the benefits of oil fuel, such as re-

duction in labor. The problem of securing sufficient oil fuel is such that a number of large steamers which were being built to burn oil were suddenly adapted this year to burn coal as well. The owners were advised that steady supplies of oil fuel could not be guaranteed.

Owners of cargo liners have still been handicapped by inadequate tonnage. New services are known to be under consideration for establishment when more tonnage is available. In this connection owners are much interested in a number of new services which are being instituted by the Canadian Government Merchant Marine, Ltd., the stock of which is owned by the Canadian government. Owners naturally do not like the idea of government ownership of shipping. Yet they are willing to acknowledge that the management of the Canadian government merchant marine is adopting an enterprising policy, and is trying to interfere as little as possible with existing services.

Within the past few days, announcement has been made that the Canadian government will inaugurate services this year from the Canadian Atlantic ports via the Mediterranean to India and the Straits Settlements. Immediately the Ellerman & Bucknall Steamship Co. stated that it had been in negotiation for some time past for a similar service and that it had only just heard of the Canadian government's intention. The first steamer in this company's service is to load in July. It would seem that later on, there will be some competition in this route. It is perhaps because of its enterprising policy in seeking out new routes that the Canadian government scheme has aroused so little criticism. The policy of the Australian government in competing in the trade between Australia and the United Kingdom has caused a great deal of friction both among owners and merchants.

#### Passenger Liners Needed

Managers of the fast passenger and mail liners have also insisted on the extreme importance to them of the fuel problem. If and when bunker coal is placed in the same class as coal for industrial works, their difficulties will be reduced. They, more than any other class of steamship owners, are feeling the scarcity of tonnage. As everybody knows, passenger vessels were not built during the war. The demand for passenger accommodation is not as keen as it was. The long waiting lists of passengers have been reduced or in some cases eliminated. In the South American trade, the companies are practi-

cally level with the demand. During the summer months, the bookings to the Far East are comparatively light, and a heavy demand may again be expected in the early autumn.

Fares have now been raised to a point beyond which managers realize they cannot well advance them. As long as vast numbers of people were waiting to travel, the level of the rate did not seriously affect the volume of traffic. But the present high rates may well be a hindrance to those to whom travel is a luxury. The total receipts from passengers in order to make voyages profitable, are now, as compared with the prewar level, enormous.

#### Conversion Costs Mount

In the North Atlantic trade, the end of the second quarter finds the OLYMPIC and AQUITANIA appearing after a long and expensive period of reconditioning. In each case the cost of converting the liners from coal to oil fuel is estimated at £500,000. This figure is probably near enough to the actual cost to indicate the enormous cost, which is known to have been far greater than was anticipated. This cost, coupled with uncertainties of obtaining regular supplies of fuel when the vessels are converted, is likely to make owners of other vessels think carefully before committing themselves to a similar undertaking. It is known that the work of adapting the MAURETANIA will, at any rate, not be undertaken this year. This vessel should be useful in helping to cope with the great demand for accommodation for the voyage from Europe to the United States which sets in during the late summer months.

To sum up, the end of the second quarter finds the position for owners of ordinary cargo steamers distinctly less rosy. The time charter rate is falling and similarly the voyage rates generally are easier. Yet a substantial margin of profit still is left in the rates. It is quite likely that rates will fall lower yet. The cargo liner companies are benefiting by getting more ships back into service, and they are encouraged by the prospect of less anxiety in the immediate future respecting coal. The unfavorable feature is the fall in freights. The barometer for the owners of the fast passenger and mail liners seems at present to set steady. They, in turn, must expect rates in the long run to fall. On the other hand, they have their agreements with the merchants and they will be able to charter tonnage at lower rates than has hitherto been practicable. They will benefit too from lower prices for coal.



# Canada Adds to Steamship Lines

**Dominion Opens New Services in Effort to Promote Country's Commerce—Federal Authorities Control Big Fleet**

CANADA is extending her ocean services in many directions. More new steamship routes from Canadian ports have been established during the past nine months than in the previous 15 years.

The Canadian government merchant marine has opened a new service from Vancouver, B. C., to ports in Australia and New Zealand. Service may be established by the government fleet between eastern Canada and the southern Pacific dominions. The CANADIAN RAIDER was put on a run from New Zealand to Montreal via the Panama canal with an experimental cargo. It is planned to load her with eastern Canadian products and send her back to the antipodes. The New Zealand Shipping Co. now operates a service from eastern Canada to Australia and New Zealand, but their boats, instead of returning direct, carry Australian cargoes to England before coming to Canada. The Canadian government marine expects to secure Australian wool for return cargoes.

The government is establishing new freight services from Montreal to London, Liverpool, and Glasgow, and will also establish summer services from St. John, N. B., and Halifax, N. S., to various British ports. Save for a fortnightly service operated by the Furness, Withy & Co. with small boats, St. John and Halifax have never had regular summer sailings to the United Kingdom.

The government marine will have regular sailings this summer from Montreal to the British West Indies, and also to Brazil and Argentina. Other government boats will provide Halifax with a regular service to the British West Indies, and a fortnightly service to Cuba, while St. John will have boats running to Cuba and the Bahamas—probably every week. Eastern Canada is finding a ready market for the products of her farms, forests and fisheries in the West Indies, and return cargoes of sugar for the big refineries at Halifax, St. John and Montreal offer a profitable business.

In addition to the new government services, the Canada Steamship Lines, Ltd., in co-operation with the Compagnie General Transatlantique, have established services to Havre and Bordeaux, France. These two companies have arranged to operate two boats of 12,000 tons between Canada

and Antwerp, Belgium, and they also plan on running one of the big Transatlantic boats of La France class between Havre and Montreal this summer with the object of developing the tourist traffic between Canada and France.

The Marine Navigation Co. has recently inaugurated a regular service between Canada and St. Nazaire, France. The Furness line has a new service to Antwerp. The Norwegian-American line has commenced sailings from St. John to three ports in Norway, and this summer the Canadian Pacific Ocean Services, Ltd., will have boats running from Montreal to Sweden. The Cunard line has a new service from Canada to Bristol, and the Head line in addition to its service to Belfast is putting on boats to Dublin.

The Houston lines of Liverpool, have opened a service between Canada and Buenos Aires, Montevideo and Rosario, and the Marine Navigation Co. is also establishing a service to ports on the east coast of South America. In addition to the regular fortnightly passenger service to the British West Indies and Demerarra operated by the Royal Mail Steam Packet Co., another private company, Pickford & Black, have boats running from Halifax to Jamaica and Santiago, Cuba.

The Elder Dempster Co., which has for some years operated a service with 10,000-ton ships between Canada and five ports in South Africa, will commence a service this spring to the west coast of Africa. As this company has a big fleet of coasting and river boats in west Africa, its new service will open to Canadian trade the whole broadside and heart of the dark continent.

In the transatlantic passenger trade there will be a big improvement this year, pending the appearance of the new 22,000-ton, oil burning turbine EMPRESS OF CANADA, being built for the Canadian Pacific Ocean Services, Ltd. This company's liners, the EMPRESS OF BRITAIN and the VICTORIAN, which were commissioned as auxiliary cruisers during the war are being reconditioned for the transatlantic service. The Canadian Pacific Ocean Services, Ltd., have acquired a big German liner, the CROWN PRINCE WILHELM, which will be put into the British-Canadian service this year. It is reported that the Cunard

line will place the ROYAL GEORGE, which has been running to New York since the armistice, in the Canadian service.

On the Pacific, the Canadian Pacific Ocean Services, Inc. liners, taken for the war, are going back to the orient service, and the Dollar Steamship lines have started a new service between Vancouver and ports in China and Japan.

## British Shipbuilders Face Crisis

Cancellation in June of orders for 72 ships ordered in British shipyards is the result of conditions which are explained as follows by Archibald Hurd in a recent issue of *The Times*, London, England:

A variety of influences have caused a sudden set-back in the shipbuilding and engineering industries of this country, and it is apparent that what may be described, perhaps, as "the Indian summer" in these trades which supervened after the end of the war has come to an end. During the past few weeks a number of ship-owning firms have made considerable sacrifices, in order to cancel orders for ships which were placed soon after the armistice, when the outlook was much more favorable than it has since become. Freights, particularly time-charter freights, have recently been falling, and at the same time the cost of building new vessels has been steadily mounting up, owing to the cumulative effect of the wages movement during the past 18 months or so. Many shipbuilders are now convinced that it is not feasible to place orders ahead for new vessels while the present prices rule and the future movement of wages is so uncertain. An ordinary tramp steamer, which could be bought for less than £50,000 (\$242,500) seven years ago, now costs upwards of £225,000 (\$900,000); and the price promises to go higher still, owing to the fresh demands for shorter hours of labor and higher wages which have been put forward on behalf of the workers in the shipbuilding and engineering trades.

The employers in these industries have lately been asked to give increased pay, amounting to 23s 6d a week, with corresponding adjustments on piece work, and to concede

a 44-hour week. Unfortunately, experience shows that the contention advanced by the leaders when the present 48-hour week was accepted—that production would not decrease—has not been justified; it is calculated that the output per man employed is only about 70 per cent of what it was in 1913, although the earnings have been greatly increased.

In these circumstances a crisis in these two industries has arisen, the outcome of which may be a general stoppage. On the one hand, shipbuilders are confronted with a falling market, arising from the uneconomic prices at which tonnage is being produced; and, on the other, with a demand by the workers for

more money, which will still further tend to shut off orders, both British and foreign. The outlook of the industry, in view of increasing foreign competition, particularly on the part of the Americans and Japanese, is such that the employers have had practically no alternative but to return a direct negative to the workers.

### Order New Vessels

Sociedad Anonima Importadora y Exportadora de la Patagonia, Buenos Aires, Argentina, and Punta Arenas, Chile, and Braun & Blanchard, Punta Arenas, have placed orders for two steamships to be built by the Ailsa Shipbuilding Co., Troon, Scotland. The vessels will trade

between Punta Arenas and east and west ports of South America. One vessel will be of 4300 tons deadweight, 13 knots speed, with accommodations for 150 first class and 300 third class passengers. The contract price is £278,000 (\$1,352,887 normal exchange) delivery being promised in December, 1920. The Braun & Blanchard boat will have a deadweight capacity of 3000 tons and a speed of 12¼ knots with accommodations for 100 first class and 300 third class passengers. The cost is £217,000 (\$1,056,031 normal exchange) to be delivered in May, 1921. The two South American companies are closely allied, and already have five passenger and cargo steamers handling trade along the southern coasts of South America.

## Convert Big Liner to Oil Burner

THE Atlantic liner *AQUITANIA* has just completed a period of complete overhauling at the Walker yard of Messrs. Armstrong, Whitworth & Co., on the Tyne. She reached Liverpool at the end of June to prepare for her initial voyage to New York on July 17. The principal work was in converting her to an oil burner but extensive reconditioning was necessary to fit her for commercial purposes after her war service as an armed merchant cruiser, hospital ship and transport. The *London Times* of June 16 contained the following description of the changes made on this great liner:

"As regards the use of oil fuel, the work has been of much greater magnitude than appears on a casual inspection. The visitor may see that there are four boiler rooms containing 21 double-ended boilers each with eight furnaces—or 168 in all—and that each of the furnace doors has been furnished with a somewhat insignificant brass burner through which oil is forced by mechanical pressure in such a way that when ignited it forms a cone of incandescent spray. Further, in front of each row of boilers he will see a couple of pumps, either of which is capable, with a fairly leisurely movement, of supplying this mechanical pressure. But not until after careful inspection will he realize that these simple burners have required an enormous amount of work, including the installation of miles of pipes to feed them with oil from the settling tanks, which in turn are supplied from the storage bunkers. In these, coal was formerly carried but to fit them up for their new use their bulkheads have been stiffened to prevent deformation by the weight of the oil, and their plate joints have been specially treated to render them oil-

tight. In ships which carry cargo, the oil may be stored in the double bottom and the coal bunkers and in cargo, but the *AQUITANIA* is not a cargo carrier, and this arrangement did not present any advantages in her case. However, since the side bunkers do not provide sufficient capacity to carry the 7000 tons of oil that have to be shipped at New York six double bottom tanks have been used for the purpose. The inter-connections between these various tanks and the connections that lead from them to the pumps and the burners have necessitated the laying of some 16 miles of pipes for which it was often a difficult business to find room. Every precaution has been taken to make these various connections tight and prevent leakage, but the probability of leakage, and therefore, of fire, has not been overlooked. A system of extinguishing oil fires has, therefore, been installed in the boiler rooms, and in addition a number of hand extinguishers are provided.

### Advantages of Oil Firing

"With coal-fired boilers, there is always a considerable loss of steam every watch through burning down and cleaning of fires. In the *AQUITANIA*, assuming that 28 fires are cleaned every watch, almost 8000 horsepower is lost every four hours. With oil firing, there is no such loss, as the oil can be supplied continuously to the burners and the heating maintained, so that constant steam pressure can be kept up. This will have the effect of improving the speed of the vessel and the regularity of her service. Also, owing to the temperature of the boilers being maintained constant, the bill for boiler repairs will be reduced. There will be no ashes to be removed and consequently no dust and inconvenience to passengers from

that source. Another advantage not to be overlooked is the absence of noise and dirt when bunkering. The stokers will work under incomparably better conditions in the stokehold. They will also gain in that special attention has been given to their accommodation. The rooms allocated to them form a new standard of comfort, cabins containing two, three, or four berths each having been provided for each boiler-room complement.

"In the reconditioning work an average of 160 joiners, 80 painters and 30 polishers have been continuously employed. The whole ship has been cleaned and repainted, many new carpets have been supplied and the original furniture, which has been stored in the Cunard company's warehouses since August, 1914, is being replaced. Among the structural alterations on deck D, a bank and inquiry office or information bureau have been established opposite the great restaurant and a sun bath has been added to the gymnasium and swimming bath. The staterooms on the boat deck have been made with single berth rooms, and the whole of the accommodation on deck B amidships has been rebuilt, the rooms being reduced in number and increased in size with the addition of private dining rooms in many cases."

The torpedo boat destroyer *SATTERLEE* successfully completed her standardization trials off the coast of Rockland, Me., when she made a mile at the rate of 38.257 knots. On the five top speeds, the *SATTERLEE* averaged 37.272 knots and the maximum revolutions were 486.04 a minute, giving a horsepower of 31,223. The *SATTERLEE* was built by the Newport News Shipbuilding & Drydock Co., Newport News, Va.

# What the British Are Doing

## Short Surveys of Important Activities in Maritime Centers of Island Empire

**L**ABOR conditions in British shipyards continue quiet although further demands for substantial increases in wages are being made. In the Belfast, Ireland, shipbuilding and engineering trades, the second portion of the March award became operative on June 11, when the men received an additional 3 shillings per day, or 7½ per cent in the case of piece workers. Further claims have been forwarded and in some cases as much as £1 3s 6d (\$4.70) advance per week has been demanded. On the northeast coast of England, considerable delay has been experienced in settling the questions arising out of the operation of the 47-hour week in the engineering and shipbuilding trades, such as the proposed shortening of the night shift week, increased payment for the night shift and also payment for overtime. Shipbuilding and engineering workers in this district are claiming a general advance of 6 pence an hour, while the men in the ship-repairing trades are asking for a minimum weekly wage for engineers on ship-repairing work of £5 (\$20), with overtime at double rates on week days and double time at the week-end. The unusual demand is also being put forward that workmen starting any hour of the day receive a full day's pay.

As Sir Joseph G. Broodbank, member of the Port of London authority, stated recently in a paper read by him at the Institute of Transport meeting, "If advances in wages were reflected in additional out-turn, there would be no problem, but it is notorious that, as a rule, there has been a considerably smaller out-turn as wages have advanced, and, what is more unsatisfactory, often a declaration that the men do not intend to work as they have done." Fortunately, great activity prevails in the shipyards on the northeast coast of England and output in this district promises to be much better than last year, although in the month of May only 12 steamers of 18,328 tons were launched, as compared with 13 vessels of 22,161 tons in the corresponding month last year. In the first five months of this year, 38 vessels of 108,823 aggregate register tons were launched on the northeast coast as

against 33 ships of 60,963 tons from January to the end of May 1919.

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**T**HE effect of the enormous increase in the cost of labor on international trade can only be successfully neutralized by a greater employment of labor saving devices for handling cargo. British labor so far has shown a rather marked antipathy to this step. The outstanding problem seems to be to deal more economically with a mixed cargo intended for delivery to numerous consignees. The method adopted in London is the old one of landing the whole cargo, sorting it, and then proceeding with delivery to barge, rail or cart. Delivery cannot be performed at the maximum rate until the vessel has left her berth. In the new Albert Dock extension at London, the port authority is experimenting with a system of dolphins erected in front of the quay. The cranes will stand on the dolphins and serve both the ship, the quay, and the barges which lie in the canal between the dolphin and the quay. This arrangement is designed to permit landing on the quay, delivery to either side of the ship into barge, and delivery from the quay to barge all at the same time. The scheme is not an original one but it is the first time it has been applied to the largest cargo liners.

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**A**MONG the contracts now being executed at the docks at Jarrow, England, is one covering alterations to the *PUNCO*, the one time famous German raider *MOEWE*. This ship was built in 1892 by an English firm for German owners and has a carrying capacity of 16,200 tons. Repairs are also being made to the *PYRI*, belonging to Yugoslavia, and it may be added that the *PYRI* is the first ship to fly the flag of the new republic. The 400-foot steamer *JEYPORE*, built by Gray & Co. for the Peninsular & Oriental Steam Navigation Co., has recently been launched. She has a deadweight carrying capacity of 8000 tons.

Smiths Dock Co., Ltd., North Shields, England, has initiated what is claimed to be a new scheme in ship construction, in connection with building an oil hulk of 6000-ton capacity which

when completed will be towed to Las Palmas. The hulk, which will hold a pumping installation capable of pumping oil into liners at a rapid rate, will be moored at Las Palmas. The hulk will be replenished by oil steamers, so that from the time it is moored in position oil will always be available at Las Palmas for bunkering purposes. The special feature is that the shell and bulkheads are all formed of semi-circular plates which do away with frames and stringers in the construction. Another novel feature of the construction is the fact that the hulk is being built in drydock. This expedient has been adopted because the firm has no land where a craft of this size could be constructed in the ordinary way. The hulk is being built from Smiths' patented designs.

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**T**HE White Star Liner *OLYMPIC* is once more on duty. She has been in the hands of her builders, Harland & Wolff, Ltd., at Belfast, Ireland, for reconditioning and alterations since August, 1919. The liner's passenger accommodation has been overhauled and redecorated and the furnaces converted to oil burners. The entire work was heavy and gave employment continuously for nine months to over 2000 men. Recently, the number was increased so as to enable the ship to get away in time to keep her appointed sailing date from Southampton on June 25. The *CEDRIC*, 21,035 tons, belonging to the White Star line, will now be reconditioned and overhauled at the Belfast yards. The Cunard line also is making tremendous efforts to meet the extraordinary amount of traffic between the United States and the United Kingdom. The reconditioning of the *MAURETANIA*, which, it will be remembered, did remarkable service in the Mediterranean as a hospital ship during the war, will be expedited.

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**T**HE prime minister of Great Britain has appointed a committee, to be known as the imperial shipping committee, which will examine the maritime transport service of the empire. It will inquire into complaints from persons and bodies interested in ocean freights, facilities, and conditions in the inter-

imperial trade; the committee also will deal with questions of a similar nature referred to it by any of the nominating authorities, and will report its conclusions to the governments concerned. It will also be the duty of this committee to survey the facilities for maritime transport on such routes as appear to it to be necessary for trade within the empire, and to make recommendations to the proper authority for the co-ordination and improvement of such facilities with regard to the type, size and speed of ships, depth of water in docks and channels, construction of harbor works and similar matters. The secretary is E. J. Elliott, of the board of trade, Great George street, London S. W. 1.

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**M**ASSEY GREENE, Australian commonwealth minister of trade and customs, in reply to representations as to the disastrous effect the enforcement of the new Australian coastwise shipping act would have upon Tasmania, stated recently that Hobart business men could rest assured that when the act was proclaimed, the claims of Tasmania to special consideration on account of

the island state's isolation would not be overlooked. Tasmania was, therefore, greatly surprised when the general manager of the Orient Steam Navigation Co. in Australia recently informed the Hobart agents that steamers of this line calling at the Tasmanian capital to load apples for the United Kingdom this season would not be able to carry interstate passengers.

In explanation, he stated that an application for the exemption of the company's steamers under section 286, which provides that "the governor-general by order may declare that British steamers carrying passengers between specified ports shall not be deemed to be engaged in the coasting trade" had been refused, and that they could have little hope of securing licences to trade coastwise unless the company carried out the numerous structural alterations to its ships to comply with the Australian coastwise law. It is quite possible that certain Australian ports of call may be omitted from the itinerary of the Orient company, and if Hobart should be omitted it would mean that Tasmania would lose five or six Orient liners a year for the carriage of fruit

to the United Kingdom and quite possibly a similar number of P. & O. steamers. On the other hand, if the ships are allowed to call during the fruit season but are not allowed to carry interstate passengers, it may be that higher freights will have to be charged.

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**T**HE autocratic powers given to the shipping controller in Great Britain under the defense of the realm act are apparently still in existence, as evidenced by the decision recently delivered by Justice Greer in the case of the Hudson Bay Co. vs Maclay. The plaintiffs were agents for the French government and the shipping controller directed their vessels to undertake certain voyages which interfered with their original plans. They protested in court, claiming that a state of peace existed *de facto*, and that the regulations had ceased to exist. The judge, however, upheld the shipping controller's power under the regulations and stated that the court would not interfere unless a regulation showed on its face that it was worthless for the purpose of securing public safety.

## Time Saved by Use of Panama Route

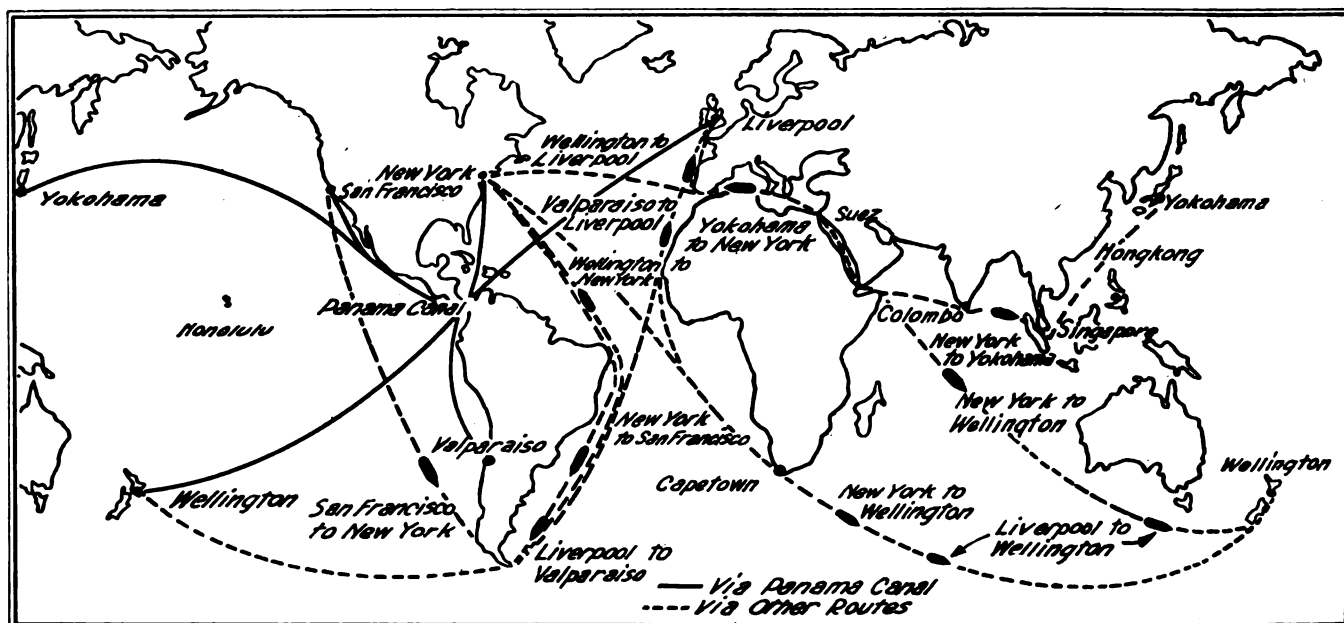
**G**RAPHIC illustration of the time saved on different trade routes by the use of the Panama canal is given in the accompanying map. This drawing was published in a recent issue of the *Panama Canal Record*.

Courses of ships between representative ports by way of the Panama canal are shown in solid lines and by alternate routes in broken lines. Black spots along the dotted lines show the approximate position of a ship using the long

course when a similar vessel through the canal has reached her destination. Equal speed is assumed but consideration of delays for fuel, supplies, repairs, etc., is omitted. In general, the advantage in this respect is with the canal on account of the excellent terminal facilities.

As an illustration, on a voyage from New York to Yokohama, a ship through the canal travels 9699 miles reaching her destination while a similar vessel sail-

ing eastward through the Mediterranean (13,056 miles) would be about 450 miles short of Singapore with about 3357 miles still to go. This distance is greater than from Colon to San Francisco or from New York to London. On a voyage from Yokohama to New York, a ship using the canal has reached New York when one passing through the Mediterranean is about 150 miles east of Gibraltar with the Atlantic still to cross.



HOW TIME IS SAVED BY USE OF PANAMA CANAL



# Modern Sailer is Economical--II

Analysis of Operations of Sailing Vessels Shows Their Field of Profitable Service is Surprisingly Large

BY FRED B. JACOBS

LOYD'S Register of Shipping throws light on the number of sailing vessels afloat today; their tonnage, rig, etc. The latest report registers 5748 sailing vessels throughout the world. Of this number, but 32 are of 3000 gross tons and over. The largest sailer afloat today is the *FRANCE*, an auxiliary bark registering 5643 gross tons. She is 419 feet long, 56 feet beam with a depth of 25 feet. She was built at Bordeaux, France, in 1912 at the de la Gironde yards and is owned by Cie Francaise de Marine et de Commerce. Her home port is Rouen, France. She carries two oil engines, placed aft, that drive twin screws. Each engine has eight cylinders,  $17\frac{3}{4}$  inches bore with 22-inch stroke, developing 295 net horsepower, making her total power 590. This vessel is reported to be economical in operation. The largest sailing vessel built on this side of the water was the *THOMAS W. LAWSON*. She was a 7-mast schooner, registering 5218 gross tons. The *LAWSON* was  $375\frac{1}{2}$  feet long, 50 feet beam, 22 feet 9 inches deep and carried a crew of 18 men. She was built by the Fore River Shipbuilding Co., Quincy, Mass., in 1902, her home port being Boston. She enjoyed the distinction of being the largest fore-and-aft rigged sailing vessel ever constructed. Her seven masts were each 155 feet high and under full sail she spread 43,000 square feet of canvas. Her lower masts were steel 135 feet long and 32 inches diameter while her top-masts were Oregon pine 58 feet long. Her jibboom and bowsprit were in one piece, a steel spar 85 feet long. For easing long hauls in manning sheets and halyards, getting out cargo and manning the capstan, she carried six engines. One 40-horsepower engine was located forward to work the capstan and to take care of her two 10,000-pound stockless steel anchors. The other engines were 25 horsepower

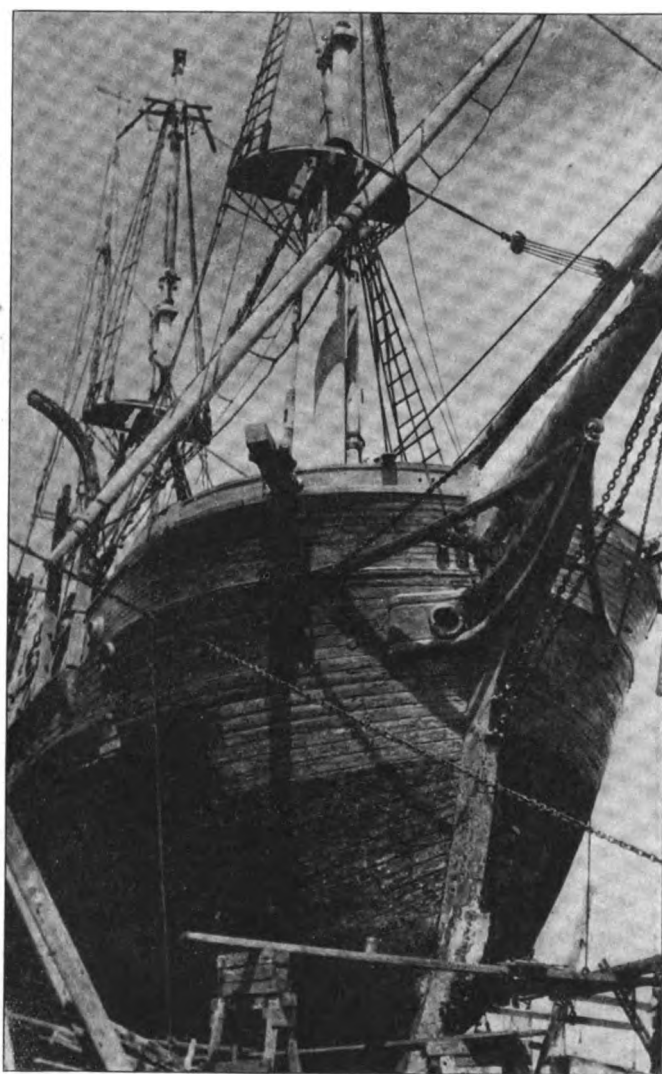
each. The *LAWSON* was commanded by Capt. Arthur Crowley and was owned by a syndicate headed by Capt. John G. Crowley. She was used principally in the coal trade between Atlantic ports although she made a number of transatlantic voyages and once she went to the Philippines.

The career of this remarkable sailer was short. According to information supplied by the *Boston Transcript*, she was wrecked on Gunners' rocks, Scilly islands, at the English channel entrance on Dec. 14, 1907, while bound from Philadelphia to London with a cargo of coal oil. She anchored off the Scilly islands at sundown with the British pilot who was to take her through the channel aboard. It was planned to make sail the following morning. During the

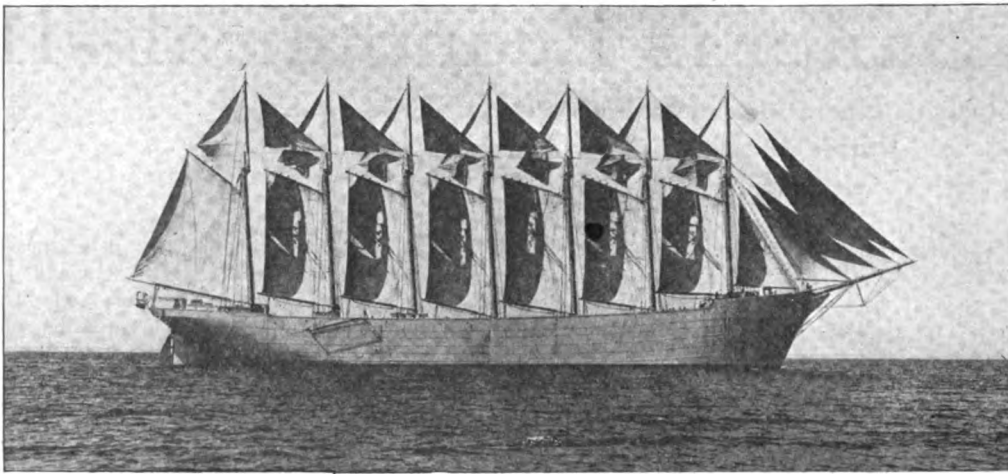
night a strong northwest gale sprang up and in spite of all that could be done she dragged her anchors and piled up on shore before sail could be got on her. At the time, she was under the command of Capt. George W. Dow, who, with the engineer, Edward Rowe, were the only survivors. The heavy surf pounded her to pieces.

This unique vessel was looked upon by many mariners as the beginning of a new era in American shipbuilding. Others equally conversant in maritime affairs predicted disaster for her, stating that she was a monumental error. All told, the *LAWSON* was a profitable vessel and proved a good investment for her owners. At the time she was wrecked she was clearing \$78,000 a year. This craft was valued at \$300,000 and was not insured. In considering the schooner rig, this type of craft has always been found profitable in certain classes of trade, schooners having been built on the northern Atlantic coast for many generations.

The schooner, by the way, is a typical American invention, another product of Yankee genius. The first schooner to be built took the water at Gloucester, Mass., in 1745. This initial schooner was a product of Andrew Robinson and was built for the fishing trade. She carried a jib, foresail and mainsail. The name schooner was coined from the New England colloquial expression, *scoon*, a word used to describe the action of a stone, when skipped over the water. From that early beginning until the present time, schooners have proved profitable investments for coastwise, whaling and fishing trade. Many schooners also have proved efficient in overseas operation. The largest schooner afloat today is the 6-mast *WYOMING*, built in 1909, by Percy & Small, Bath, Me. This yard has turned out a number of excellent wood schooners. The *WYOMING* has a gross tonnage of 3730. She is framed with oak and planked

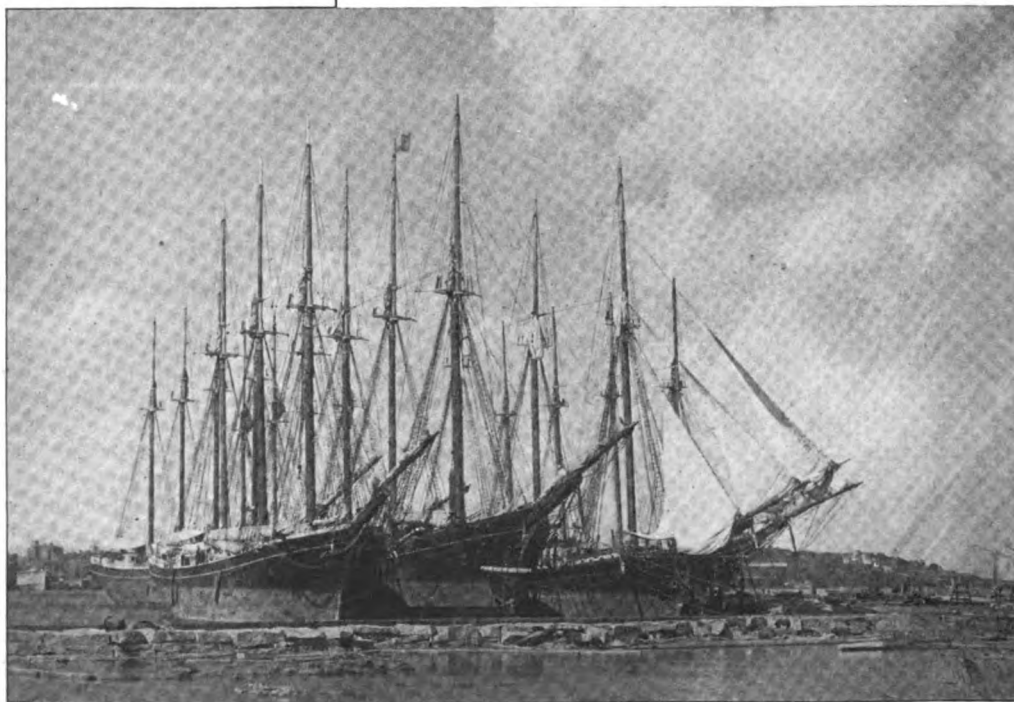
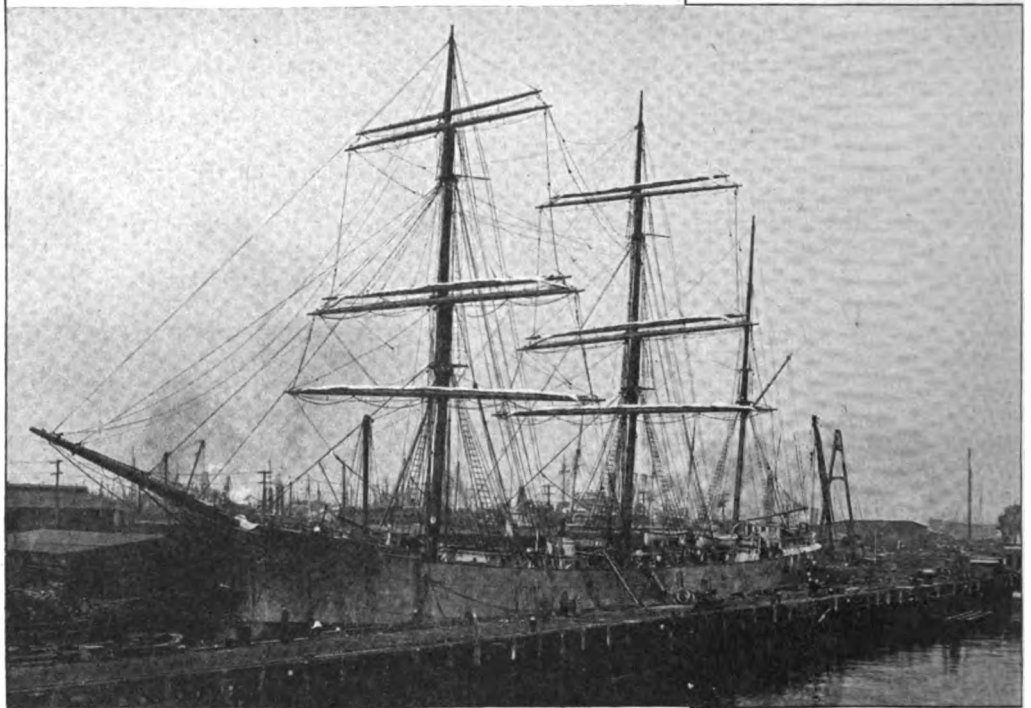


THIS 75-YEAR OLD WHALER IS TYPICAL OF SHIP DESIGN OF 1850



Thomas W. Lawson, the largest fore and aft rigged vessel ever constructed. She proved to be speedy and earned handsome dividends until driven ashore on the Scilly islands

Modern 3-mast bark Gratia. This craft is built on fine lines and is a speedy sailer. Recently she was rebuilt at New York after having been wrecked off the Virginia capes. Such craft prove economical on long, deep water voyages



Wooden schooners, typical products of Maine shipyards. These vessels are fast sailers and are extensively used in the Atlantic coastwise trade for carrying coal and lumber. Built of seasoned oak, they last for many generations

and ceiled with yellow pine. She is 329 feet long, 50 feet beam and 30 feet deep. She is operated in the lumber trade by the France & Canada Steamship Co. She carries a crew of 14 men and has logged 12 knots when loaded. When light she can make 14 knots easily.

Another large sailing vessel that is exciting favorable comment is the ALICIA HAVISIDE, described in THE MARINE REVIEW for May, 1920. This vessel originally was built as a Ferris-type steamer and later was rigged as a 5-mast barkentine. Her sailing qualities are said to be excellent. She registers 2265 gross tons and is the first 5-mast vessel of her type to be equipped on the Pacific. Designed for a steamer, it was predicted that she would make a poor showing as a sailer. However, Capt. L. G. Hansen, states that she handles as easily as any sailing vessel and that she can come about without missing stays any time she can carry a spanker. Sailing vessels of today are divided into four types: Square riggers, barks, barkentines and schooners. What type of vessel is the most economical? This is a difficult question to answer as the trade in which the vessel is to operate must be considered. All types have their advantages and disadvantages. When a certain type of vessel is adopted as a standard for a certain trade it is because experience has proved the type decided upon is the most economical. Rigs that do not prove economical gradually pass into the discard. As an illustration, a topsail schooner or a brig is seldom seen except occasionally in European waters because both these rigs for small vessels are not as economical as an out-and-out, fore-and-aft rig. Comparatively few square-rigged ships hail from American ports as the bark and barkentine, in the estimation of American ship operators at least, are proving better sailers.

Which is the more economical vessel to build and maintain, a sailer or a steamer? This is another question on which considerable speculation may be indulged. As a matter of fact, ton for ton, the first cost of a square-rigged ship and a steamer are practically the same. The cost of upkeep, on the other hand, is much less with the sailing vessel.

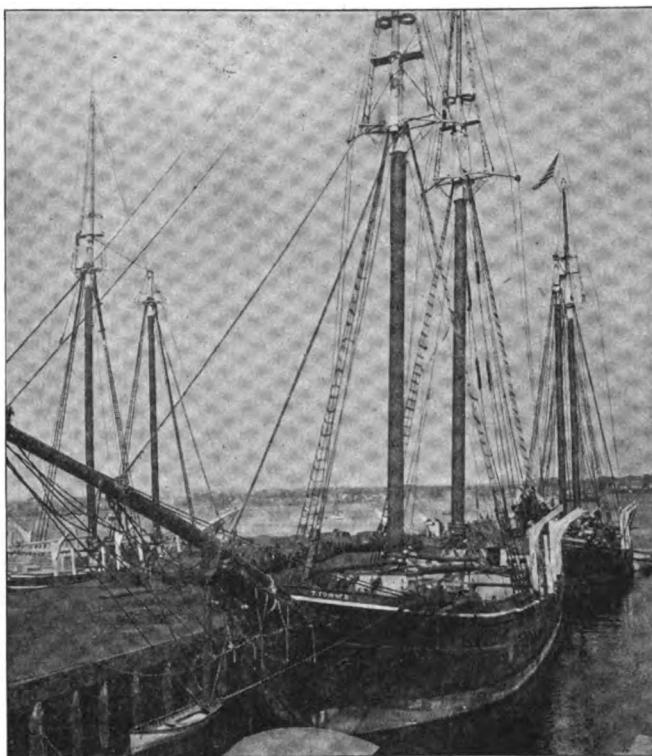
In considering sailing vessels of all types, their greatest advantage is that they go from port to port without spending large sums for motive power. The chief disadvantage is that in calms they are helpless and when compelled to beat against head winds they must sail 100 miles to make 50, that is, when laying within six points of the wind, which is as close as any sailing vessel will lay and make headway against head seas.

Another inherent disadvantage of the sailer is that she is liable to lose several thousand dollars worth of canvas before the crew is broken in to the extent of handling her intelligently. If

tear from their bolt ropes to be carried off to leeward with the screaming wind. With cotton at present prices loss of sails is a serious item.

In comparing the operation of a sailing vessel and a steamer of like cargo carrying capacity, the sailer will carry a crew of 14 men against 35 needed to man the steamer. It costs approximately four times as much to maintain the steamer as it does the sailer, but to offset this disadvantage the steamer will make four times as many trips per year as will the sailer. A steamer can be counted on to make voyage after voyage in approximately the same running time. With the sailer,

unless it is used on routes where trade winds are favorable, the running time is always a question of uncertainty. Thus, a sailing vessel cannot be operated economically in the promiscuous trade that is handled to advantage by tramp steamers. On the other hand, on established long deep water runs, the sailer shows efficiency. The Alaska Packers' association, San Francisco, operates a large fleet of ships and barks in the salmon trade. Square riggers are particularly adapted to this trade, in fact the STAR OF LAPLAND, one of the association's crack vessels, is the largest square rigger afloat today. This craft registers 3381 tons. She is a steel ship built by A. Sewall & Co., Bath, Me., in 1902. In the opinion of the association, in answer to several ques-



TYPE OF 2-MAST SCHOONER USED IN ATLANTIC WHALING INDUSTRY

it were possible to ship a crew of able-bodied seamen at every port, this disadvantage would not exist. However, aside from the carpenter, boatswain and the officers, with perhaps a few foreign born seamen, the crew of the average sailer, dropping down from her anchorage for a deep water voyage, is composed mostly of green hands, many of them boys and young men who ship purely for the love of adventure. These embryo seamen may be willing, but it takes more than willingness to keep canvas from blowing away while green hands hunt for ropes they cannot find, the mates curse roundly and confusion holds sway. Again, even with a crew that is broken in to their duties, canvas is lost when squalls come up so suddenly that it is impossible to take in sail in time. A sudden rush of wind, a vessel nearly on her beam ends and a few thousand dollars worth of sails

tions pertaining to the operation of sailing ships, the best rig for deep water service is undoubtedly a bark or a ship as in light and fair winds they are able to spread much more canvas than can a fore-and-aft rigged craft of like tonnage. The association points out that most of the barks on the Pacific are remodeled from ships which enables them to operate with at least two less men in the crew, an important item in a year's expense. This operator also points out that the only advantage a barkentine possesses over a ship or a bark is that it can lay closer to the wind and that it carries less crew and less canvas. A vessel of the type and size of the STAR OF LAPLAND makes her best time in a strong breeze. As a general rule square rigged ships make their best time with the wind a little aft of the beam or over the quarter.



TYPICAL 2-MAST FISHING SCHOONER BOUND FOR THE GRAND BANKS

In the opinion of the association, the best fields open today for the operation of sailing vessels are the South American, Australian, Polynesian and Oriental trades.

Capt. C. T. Larsen, a typical deep water sailor who has followed the sea since a boy, and who now is port captain of the Universal Shipping & Trading Co., Seattle, throws some interesting light on the operation of sailing vessels at the request of THE MARINE REVIEW. His deductions are as follows:

"In a very large sailing ship, the sails and rigging are too large for economical operation. The larger the sail is, the more difficult it is to take in during a gale and it often blows away. Again, it is much easier to get charters for the smaller vessels. Where a large steamer will take a cargo for half a dozen different ports, this procedure would not pay with a sailing ship on account of the extra expense and loss of time in moving from port to port.

"I do not think it would prove economical to carry the enormous spread of canvas that the old-time clipper ships did. A vessel would be compelled to carry an abnormally large crew and the extra sails and gear would

be comparatively expensive, making the extra cost of operation more than offset the gain in speed.

"For certain trades it is more economical to operate sailing vessels than steamers. The lumber trade from the Pacific coast to Australia furnishes a good illustration because the prevailing winds are such that a sailing vessel can make good time. Some of the schooners and barkentines on the Pacific make excellent running time, up to 14 knots an hour. In the barkentine, KOKO HEAD, while I was master, we made 336 miles one day and on the following day 305 miles. We also made the passage from Cape Flattery to Delagoa bay in 85 days, from Delagoa bay to Newcastle, N. S. W., in 30 days and from Newcastle to Kahului, T. H., in 36 days.

"Aside from the cannery ships operating on the Pacific coast, going to Alaska in the spring and coming back in the fall to lay up all winter at San Francisco, there are not many square-rigged ships or barks operated on the Pacific. There are, however, quite a number of barkentines and, in my opinion, the barkentine is the best rig of all. It offers a large spread of canvas to run with when the wind is

aft and it also has the advantage of fore-and-aft sails when the wind is abeam, or forward of the beam."

In considering the various types of deep water vessels, it is found that each kind possesses certain advantages. A square-rigged vessel can spread a lot of canvas in a fair wind and with the wind abeam or aft of the beam she can make good time, often out-sailing a tramp steamer for days at a time. The square rigger is also a good heavy weather ship. To be sure it takes a smart crew to make and take in sail because there are so many sails to handle. On the other hand, a square rigger will often run for days at a time in favorable trade winds without letting go a single sheet.

#### Must Look After Rigging

To do her best, the rigging of a square rigger, and this applies particularly to the standing rigging, must be kept up. Her bobstay, martingale stay and martingale back ropes must be taut enough to keep the headstays taut. The strain in turn being taken by the backstays, the entire rigging is taut which keeps the spars in place. Let the lanyards on the backstays work loose and the whole standing rigging gives every time the ship pitches. This, of course, brings an enormous strain on the spars.

In considering the sails of a square rigger, if they are sheeted home properly and the yards correctly braced, the spars do not have a chance to give to any extent as the ship pitches. To be sure, the sails may slat against the masts in light airs, when a heavy sea is running, but the fact that the entire running and standing rigging is adequately braced against the strains brought about by the motion of the ship, is a point decidedly in favor of the square rig.

The square rig, on the other hand, possesses some disadvantages. In the first place, nowadays it is a hard problem to find enough able-bodied seamen to man a craft of this type properly. This accounts for the fact that many a square rigger loses half her canvas before a green crew is broken in. Again, it requires a comparatively large crew to handle a square rigger. Further, a square rigger will not make good headway when sailing on the wind. Many of them will not lay up within seven points. No square rigger will lay closer than six points and even then her speed is retarded as it is impossible to keep her sails full at all times, due to the pitching caused by head seas striking her weather bow. To be sure, in the old clipper ship days, bowlines were rigged to haul out the weather leaches of the sails. However, the mod-



ern square rigger seldom steadies out bowlines as it is too much bother. Again it must be remembered that the bowlines must be let go and steadied out again every time the ship is tacked. This calls for a larger crew than the modern square rigger generally carries.

The large number of sails and yards on a square rigger make her difficult to handle in coming about as all the yards must be hauled. With the helm alee and the head of the ship within about a point and a half of the wind, if the order "mainsail haul" is given and carried out just at the right moment, the yards will swing of themselves, as any deep water sailor knows. And if a good run is made with the braces, they can be run nearly sharp up on the other tack on one run. With an inexperienced crew, if the run is left until the ship's head is in the wind, the sail is becalmed and before it can be got sharp up, the wind on the other bow will cause a dead haul. This looks easy on paper but with the small crews allotted to modern square riggers it is a man's job.

Sometimes, when the wind shifts suddenly, a square rigger is caught all aback, that is, the wind in bearing on the forward part of the sails. Then the ship must be boxed off which calls for good judgment. Sometimes she refuses to box off in which case the officer on watch must proceed as if he were staying ship.

Just imagine for a moment what it

means to handle a square rigger on a night as dark as a "score of black cats" and it is readily seen where seamanship of the highest order is required. Modern square riggers are not as easily handled as the shorter clippers of half a century ago. These ships could be brought about in heavy weather when under doubled reefed topsails and courses; that is, if the sea was not running too high. Present-day ships will not come about when under shortened sail and for this reason it is necessary to wear them around.

About the only advantage possessed by a bark over a ship, assuming that in both cases the vessel is a 3-master, is that the bark can be handled by a smaller crew. The spanker and the gaff topsail, being fore-and-aft sails, take care of themselves in tacking. The barkentine possesses a decided advantage in the opinion of many seamen over a bark or a ship in that it is easily handled, owing to the absence of a large number of square sails. Again, a barkentine possesses practically all the advantages of a schooner for working to windward with the added value of square sails for running free.

The principal advantage of a fore and aft rigged vessel is that it is quite easy to handle in tacking ship. With the fore-and-aft rigged craft, she is in her safest position with her head near the wind. There is no danger of being caught back in tacking or through a sudden shift of wind. This rig possesses

its disadvantages, the principal one of which is wear and tear on the sails. It must be remembered that the gaffs are comparatively heavy and that when the vessel is pitching in a heavy sea, without making much headway, the slatting of these heavy spars throws an enormous strain on the sails and masts. Again, fore-and-aft sails require much attention in reefing as they are more liable to be split than are square sails. This, of course, happens through the earings and points not being properly tied. It is an easy matter for an inexperienced man, or an indifferent seaman, to make a mistake of this kind on a dark night. The fact that a fore-and-aft rigged vessel can be handled by a small crew, however, has caused this rig to become popular on this side.

Fore-and-aft riggers are not in common use in European waters due to the fact that continental navigators favor square-rigged craft. Thus, for small craft the brig, brigantine and hermaphrodite brig are favorite rigs. Topsail schooners are sometimes used in European waters, however, although this rig is seldom seen on this side of the Atlantic or on the Pacific. A topsail schooner carries a fore topsail and fore topgallant in addition to her fore-and-aft sails. The advantages of this rig are that the square sails give a comparatively large spread of canvas for running.

The coming sailing vessel of the  
(Concluded on Page 470)



WHERE SQUARE RIGGERS ARE SEEN IN ABUNDANCE ALONG THE SEATTLE WATERFRONT

# Marine Business Statistics Condensed

## Boston Traffic

The effect of the war is clearly shown in the following statistics covering commercial ocean tonnage entering and clearing from the port of Boston. In 1917, the number of vessels entering Boston dropped approx-

### VESSELS ENTERING AND LEAVING THE BOSTON PORT DURING 1920 (Off-shore trade only)

Months	—ENTERED—		—CLEARED—	
	No. ships	(Net) tonnage	No. ships	(Net) tonnage
January	26	66,829	17	54,203
February	23	68,344	8	19,227
March	24	86,755	15	39,079
April	38	111,719	21	43,726
May	31	60,204	28	34,472
June	58	109,204	44	49,906

### American Registry

Months	—ENTERED—		—CLEARED—	
	No. ships	(Net) tonnage	No. ships	(Net) tonnage
January	27	74,297	23	49,203
February	23	55,878	16	36,296
March	36	84,031	21	48,438
April	46	68,777	47	74,498
May	54	64,466	53	52,964
June	62	88,932	44	74,688

mately 300 or over 25 per cent, and the total tonnage dropped off over 24 per cent. In 1918, the low point in port activity was reached and since that time a fairly substantial increase has been made toward a prewar

### BOSTON PORT TRAFFIC FROM 1909 TO 1919 (Off-shore trade only)

Year	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
1909	1390	2,714,239	1161	1,831,534
1910	1363	2,799,672	1142	1,860,079
1911	1376	2,907,782	1112	1,891,754
1912	1422	3,023,145	1127	1,868,047
1913	1431	3,154,816	1141	2,062,612
1914	1325	3,154,816	1024	1,832,562
1915	1165	2,197,809	917	1,497,441
1916	1167	2,212,763	962	1,544,244
1917	876	1,726,398	698	1,183,255
1918	741	1,298,614	573	1,041,051
1919	860	1,742,738	700	1,269,198

level. An interesting feature of the statistics showing foreign and American registry of ships entering and leaving the port is the abrupt drop in foreign vessels and the rise in American.

## Philadelphia Traffic

With practically nothing going out except coal, grain and oil, and little more than sugar coming in, the steamship traffic at the port of Philadelphia dropped back to a low record for the year during June. Entrances were not so large as for the month previous, due to the longshoremen's strike which hampered all the steamship companies with the possible exception of the International Mercantile Marine which maintains its own stevedore

service. The clearances were the smallest for any month this year with the exception of last March. This resulted not only from the longshoremen's strike but from the rail tie-up.

### PHILADELPHIA PORT TRAFFIC 1920 (Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
January	59	139,941	67	199,396
February	67	184,753	72	230,766
March	91	223,082	65	171,724
April	88	205,694	89	237,730
*May	129	316,246	126	315,997
June	106	250,970	75	171,875

\*Corrected.

Bunker coal at Philadelphia has been selling for \$13.50 a ton. Approximately one-fourth of the ships entered in ballast and about one-sixth cleared in ballast during the month. American flag ships exceeded the foreign tonnage entered or cleared.

## New York Traffic

New York accommodated a larger net tonnage of entrances during the first six months of 1920 than during the same period of last year, although the

### NEW YORK PORT TRAFFIC 1920 (Exclusive of domestic)

Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
January	372	1,143,126	410	1,450,778
February	377	1,174,913	329	1,054,269
March	440	1,322,013	410	1,369,829
April	431	1,302,177	386	1,243,000
May	444	1,343,052	390	1,258,996
June	508	1,545,144	436	1,364,297

number of ships entered was smaller. This would indicate that New York is today accommodating ships of a larger average capacity than it did last year. The June entrances were the largest in number of ships and total net tonnage of ships so far recorded for any month this year. The number of ships cleared also established a record this year, although their total net tonnage was not so large as during the months of January or March last. The supply of tonnage has been more than adequate to care for all of the freight business offered.

## U. S. Ships at Yokohama

American shipping has recorded tremendous gains in Japanese trade in recent months. A record was set in April for entries at Yokohama when American shipping led all others except Japanese, both in numbers and in tonnage, with 32 ships and a tonnage of 125,825. The United Kingdom was next with 25 ships and 115,561 tons.

The following table shows the number

and tonnage of American vessels arriving in Yokohama harbor since January, 1913. In the three months ended March 31, 1920, American ships numbering 77 of 312,418 tons, entered Yokohama, a larger total than for any previous year except 1919. Congestion at Yokohama is delaying ship movements, one American vessel being delayed 34 days. The table follows:

Year	—Three months ending—				Total vessels	Total tonnage
	Mar.	June	Sept.	Dec.	for year	for year
1913	12	16	14	14	56	406,167
1914	14	14	16	12	56	389,958
1915	13	14	13	1	41	280,363
1916	2	8	9	10	29	79,586
1917	9	15	13	14	51	159,676
1918	16	15	13	15	59	177,227
1919	19	19	32	53	123	453,922

## Soo Canal Report

The total movement of freight through the Soo canal in June was 10,647,819 net tons, a decrease of 571,597 net tons when compared with shipments for June of last year of 11,219,416 net tons. Last month's shipments are 2,577,344 net tons behind the movement for June, 1917, which month had the largest total for a like period in the last seven years. The tonnage comparison figures for the past seven years follow:

	Net Tons
June, 1920	10,647,819
June, 1919	11,219,416
June, 1918	11,999,520
June, 1917	13,225,163
June, 1916	12,960,469
June, 1915	8,360,832
June, 1914	8,588,081

Of the total freight carried in June, 10,350,625 tons were handled through the United States canal while 297,194 tons passed through the Canadian canal.

The following tabulation gives the figures in detail for 1920 and 1919:

### EASTBOUND

	To July 1, 1920	To July 1, 1919
Lumber, M. ft. B. M.	50,908	72,379
Flour, barrels	1,741,431	1,942,154
Wheat, bushels	23,748,731	52,227,167
Grain, bushels	20,989,928	20,241,316
Copper, net tons	7,721	11,966
Iron ore, net tons	15,553,800	15,766,450
Pig iron, net tons		110
Stone, net tons	25,025	14,810
Gen'l merch., net tons	18,358	21,629
Passengers, number	4,680	4,436

### WESTBOUND

Coal, soft, net tons	1,548,588	4,922,546
Coal, hard, net tons	483,020	618,327
Iron ore, net tons	39,760	32,397
Manufactured iron and steel, net tons	23,728	40,260
Salt, net tons	29,996	32,834
Oil, net tons	94,766	147,798
Stone, net tons	148,361	28,695
Gen'l merch., net tons	145,573	129,261
Passengers, number	5,484	4,841

### SUMMARY

Vessel passages, number	5,179	6,170
Registered tonnage, net	16,084,186	17,723,916
Freight:		
Eastbound, net tons	17,062,446	18,208,787
Westbound, net tons	2,513,792	5,952,118
Total freight, net tons	19,606,238	24,158,905

# Marine Business Statistics Condensed

## Volume of Shipbuilding

On June 1, 1920, private American shipyards were building or under contract to build for private ship-owners 345 steel vessels of 1,360,643 gross tons, compared with 348 steel vessels of 1,391,341 gross tons on May 1, 1920, the first decline since July, 1919. These figures do not include government ships building or contracted for by the United States shipping board out of money voted by congress. Accompanying is a summary of reports of shipyards to the bureau of navigation, department of commerce, showing the number and gross tonnage of steel ships under construction or contract for private owners on June 1, 1920, particulars of new contracts entered into during May, 1920 and the particulars of new steel vessels for private owners launched in May.

## June Ore Shipments

Shipments of iron ore from the Lake Superior district in June aggregated 9,233,566 tons, a creditable showing considering the retarding influence of transportation delays. In June, 1918, shipments totaled 7,980,839 tons. Detailed figures follow:

Port	June 1920	To July 1, 1920
Escanaba	1,147,136	1,942,809
Marquette	553,367	928,403
Ashland	1,299,820	2,312,869
Superior	2,256,250	4,445,496
Duluth	2,528,446	4,216,685
Two Harbors	1,448,547	2,594,243
<b>Total</b>	<b>9,233,566</b>	<b>16,440,505</b>
1920 increase	1,252,727	432,086

## June Lake Levels

The United States lake survey reports the monthly mean stages of the Great Lakes for the month of June, 1920, as follows:

Lakes	Feet above mean sea level May	June
Superior	602.40	602.75
Michigan-Huron	580.73	580.88
St. Clair	575.24	575.42
Erie	572.31	572.49
Ontario	245.60	245.56

Lake Superior is 0.35 foot higher than last month, 0.31 foot higher than a year ago, 0.49 foot above the average stage of June of the last 10 years, 0.68 foot below the high stage of June, 1916, and 1.51 feet above the low stage of June, 1879.

Lakes Michigan-Huron are 0.13 foot higher than last month, 0.62 foot lower than a year ago, exactly the same as the average stage of June of the last 10 years, 2.74 feet below the

## Ship Orders Held by American Yards

Companies	No.	Gross tons
American Bridge Co., Ambridge, Pa.	70	38,765
American Shipbuilding Co., Cleveland, O.	12	48,000
Baltimore Dry Docks & Shipbuilding Co., Baltimore.	1	7,367
Bath Iron Works, Bath, Me.	1	6,250
Bethlehem Shipbuilding Corp. (Ltd.):		
Fore River Plant, Quincy, Mass.	7	54,520
Harlan Plant, Wilmington, Del.	4	23,000
Moore Plant, Elizabeth, N. J.	5	2,850
Sparrows Point Plant, Sparrows Point, Md.	6	48,700
Union Plant, San Francisco	7	49,050
Brunswick Marine Construction Corp., Brunswick, Ga.	1	1,000
Chickasaw Shipbuilding & Car Co., Mobile, Ala.	4	23,000
Clinton Shipbuilding & Repair Co., Philadelphia	13	84,100
Consolidated Shipbuilding Corp., Morris Heights, N. Y.	8	4,000
Downey Shipbuilding Co., Newark, N. J.	1	1,000
Federal Shipbuilding Co., Newark, N. J.	4	12,000
George A. Fuller Co., Wilmington, N. C.	24	119,000
George Lawley & Son Corp., Neponset, Mass.	4	26,800
Great Lakes Engineering Works, Ecorse, Mich.	2	.....
Greenport Shipbuilding Co., Greenport, N. Y.	1	.....
Herreshoff Mfg. Co., Bristol, R. I.	2	584
International Shipbuilding Co., Pascagoula, Miss.	1	275
James Rees & Sons Co., Pittsburgh	1	6,000
Johnson Iron Works, Morgan, New Orleans	1	294
Kyle & Purdy (Inc.), City Island, N. Y.	1	200
Long Beach Shipbuilding Co., Long Beach, Cal.	2	710
Manitowoc Shipbuilding Co., Manitowoc, Wis.	2	1,340
McDougall-Duluth Co., Duluth	2	3,300
Merchant Shipbuilding Corp., Chester, Pa.	4	9,400
Moore Shipbuilding Co., Oakland, Cal.	18	118,900
National Shipbuilding Corp., Violet, La.	9	69,300
Newburgh Shipyards (Inc.), Newburgh, N. Y.	2	1,250
New Jersey Dry Dock Co., Elizabeth, N. J.	5	18,000
Newport News Shipbuilding & Dry Dock Co., Newport News, Va.	2	730
New York Harbor Dry Dock Corp., Port Jefferson, N. Y.	4	48,800
New York Shipbuilding Corp., Camden, N. J.	1	700
Northwest Bridge & Iron Co., Portland, Oreg.	7	50,800
Oscar Daniels Co., Tampa, Fla.	7	59,150
Pacific Coast Shipbuilding Co., San Francisco	2	16,000
Pusey & Jones, Wilmington, Del.	2	1,150
Schaw-Batcher Pipe Co., South San Francisco	3	4,300
Seattle Dry Dock Co. (Inc.), Seattle	2	16,000
Southwestern Shipbuilding Co., San Pedro, Cal.	1	438
Standard Shipbuilding Corp., New York	2	1,325
Standard Shipbuilding Co., Shooters Island, N. Y.	2	2,800
G. M. Standifer Construction Corp., Vancouver, Wash.	4	22,400
Staten Island Shipbuilding Co., Port Richmond, N. Y.	6	43,032
Submarine Boat Corp., Newark, N. J.	4	8,750
Sun Shipbuilding Co., Chester, Pa.	35	110,615
Tank Shipbuilding Corp., Newburgh, N. Y.	20	145,790
Texas Steamship Co., Bath, Me.	5	3,370
Todd Dry Dock & Construction Corp., Tacoma, Wash.	7	28,750
Union Construction Co., Oakland, Cal.	2	9,600
Union Shipbuilding Co., Baltimore	4	21,502
William Cramp & Sons' Ship & Engine Building Co., Philadelphia	2	3,780
	2	5,906
<b>Total</b>	<b>345</b>	<b>1,360,643</b>

## New Ship Orders

Vessel	Gross tonnage	Owner	Trade	Probable date of launch
Submarine Boat Corp., Newark, N. J. 4 vessels (a)	180	Builder's account	Freight	June and July, 1920
Sun Shipbuilding Co., Chester, Pa.: No. 44 (b)	6,600	Benham & Boyesen (Inc.)	Bulk oil	.....
Tank Shipbuilding Corp., Newburgh, N. Y.: No. 21	1,000	Sunset Fuel Oil Co.	Bulk oil	September, 1920.

(a) Each. (b) Speed 11 knots.

## Recent Ship Launchings

Vessel	Gross tonnage	Owner	Trade
American Bridge Co., Ambridge, Pa.: Barge	552	Standard Oil Co. of Louisiana	Bulk oil
Clairton	364	Carnegie Steel Co.	Freight
Bethlehem Shipbuilding Corp., Sparrows Point, Md.: Rochester	6,910	Vacuum Oil Co.	Bulk oil
Herreshoff Mfg. Co., Bristol, R. I.: Ohonkara	126	Carl Tucker	Yacht
National Shipbuilding Corp., Violet, La.: Mexpet 105	721	Pan-American Petroleum & Transportation Co.	Bulk oil
G. M. Standifer Construction Corp., Vancouver, Wash.: Aquarius (a)	6,094	Green Star Steamship Corp.	Cargo
Texas Steamship Co., Bath, Me.: Occidental (b)	6,727	Builder's account	Bulk oil
Whitney Bros., Superior, Wis.: William A. Whitney (a)	158	Builder's account	Towing

(a) Speed 10 knots; (b) 11½ knots.

# Marine Business Statistics Condensed

high stage of June, 1886, and 0.96 foot above the low stage of June, 1896. During the last 10 years the June level has averaged 0.3 foot higher than the May level, and 0.1 foot lower than the July level.

Lake Erie is 0.18 foot higher than last month, 1.28 foot lower than a year ago, 0.42 foot below the average stage of the last 10 years, 2.03 feet below the high stage of June, 1876, and 0.92 foot above the low stage of June, 1895. During the last 10 years the June level has averaged 0.2 foot higher than the May level, and 0.1 foot higher than the July level.

Lake Ontario is 0.04 foot lower than last month, 2.39 feet lower than a year ago, 1.37 feet below the average stage of June of the last 10 years, 3.07 feet below the high stage of June, 1870, and 0.67 foot above the low stage of June, 1895. During the last 10 years the June level has averaged 0.2 foot higher than the May.

## Lake Erie Receipts

Out of a total of 9,233,566 tons shipped from upper lake ports in June, Lake Erie ports received 6,423,964 tons, as shown by the figures compiled by MARINE REVIEW. The balance on dock July 1 was 7,005,050 tons against 6,310,141 tons on July 1, 1919. Detailed figures are:

Port	Gross tons
Buffalo and Port Colborne.....	1,277,764
Erie .....	323,338
Conneaut .....	963,119
Ashtabula .....	1,194,003
Fairport .....	198,096
Cleveland .....	1,080,229
Lorain .....	631,579
Huron .....	215,287
Toledo .....	415,186
Detroit .....	125,363
<b>Total .....</b>	<b>6,423,964</b>

## Lake Michigan Receipts

Receipts of ore at Lake Michigan ports for June were 2,303,015 gross tons, as shown in the following record by ports:

Port	Gross tons
South Chicago, Ill.....	1,253,672
East Jordan, Mich.....	14,452
Boyne City, Mich.....	2,052
Milwaukee .....	7,155
Indiana Harbor, Ind.....	212,501
Gary, Ind.....	813,183
<b>Total .....</b>	<b>2,303,015</b>

## New Ship Firms

Companies organized in June to engage in the shipping industry had an aggregate authorized capital of \$86,050,000. The total is the largest for any month in the last two years, except April when the incorporation of a \$150,000,000 company carried the total for the month up to \$178,835,000. These records as compiled by *The Journal of Commerce*, New York, show also that the number of companies organized in June was the largest for any month of this year. The total number of firms was 33. The indicated investment last month compares with \$31,983,000 in the preceding month and \$55,550,000 in June of last year. The June investment was greater than the entire total for either 1915 or 1916.

In the first six months of this year, new shipping companies organized have carried a total capital of \$468,403,000 compared with \$98,351,000 in the first half of 1919 and with \$323,613,000 in the year of 1919. The average monthly investment so far this year has thus been \$78,067,166 against \$16,391,833 in the first half of

last year and \$26,967,750 in the entire year.

The record of June incorporations follows:

JUNE, 1920	
Atlantic-Adriatic Steamship Corp., Del..	\$20,000,000
American-Lloyd Steamship Co., Inc., Del.	1,500,000
American-National S. S. Co., N. J.....	100,000
Ashbourne Steamship Corp., Del.....	500,000
Boston & Porto Rican Steamship Co. Del.	1,500,000
Bulk Freight Co., N. J.....	200,000
Borough Terminal Co., Inc., N. J.....	1,000,000
Cretosogus-America, Inc., N. J.....	1,000,000
Clovel Co., Del.....	650,000
Empire Chartering Corp., N. Y.....	100,000
Ellsworth Ship & Coal Corp., Del.....	100,000
Fortuna Trading Corp., Del.....	2,500,000
Fox, Victor S., & Co., Inc., N. Y.....	1,000,000
Fourth National S. S. Co., N. J.....	600,000
Glenfield S. S. Corp., Del.....	100,000
Guidera Ocean Towing & Transportation Corp., Del.	100,000
Indo-American Shipping & Trading Corp., Del.	50,000
Kleppe S. S. Co., Del.....	2,000,000
Keystone Towing Co., N. Y.....	500,000
Los Angeles Steamship Co., Cal.....	5,000,000
McCauley S. S. Co., N. J.....	200,000
Nobfield S. S. Corp., Del.....	100,000
Newport Shipbuilding Corp., Del.....	500,000
Red Diamond Steamship Corp., Del.....	1,000,000
Second National S. S. Co., N. J.....	600,000
Sigworth S. S. Corp., Del.....	1,000,000
Selworth S. S. Corp., Del.....	1,000,000
Steamship Torino Corp., Del.....	1,000,000
Simonelli, G., Inc., N. J.....	50,000
Third National Steamship Co., N. J.....	600,000
Teller Lighterage & Commercial Co., Del.	500,000
United States Ship Corp., Me.....	40,000,000
Union Shipyards Corp., Del.....	1,000,000
<b>Total .....</b>	<b>\$86,050,000</b>

RETRIEVER, a 3-mast barkentine which foundered several months ago off the Marquesas islands, has been towed 1000 miles into Papeete by the New Zealand steamship TALUNE. The barkentine was enroute with lumber from Grays Harbor, Wash., to Peru when she was struck by a hurricane. She was abandoned by her crew who made a safe trip in open boats to Nakahive island.

LAKE GATUN and LAKE MIRAFLORES are the names which two vessels of the United States shipping board are to bear, in honor of Gatun and Miraflores lakes of the Panama canal. The vessels are to be launched in August or September of this year. They are under construction at the plant of the Saginaw Shipbuilding Co., Saginaw, Mich.

To furnish and install machinery in the phosphate rock and sulphur bunkers at municipal terminal No. 4, the dock commission of Portland, Oreg., has awarded a contract to the Hesse-Martin Iron Works for \$56,514.

The steamer ALASKA, which was used during the war as a barracks for shipyard workers at Barlow, Great Britain, was famous a generation ago as the largest of transatlantic liners.

## Summary of Shipping Board Program

ACTUAL KEEL LAYINGS, LAUNCHINGS AND DELIVERIES TO JUNE 5, 1920

Month to date	No.	Keels Laid		Launched		Delivered	
		Deadweight tons	No.	deadweight tons	No.	Deadweight tons	No.
Contract steel .....	1	10,200	1	10,000	1	5,075	
Requisitioned steel .....	..	..	..	..	..	..	..
Composite .....	..	..	..	..	..	..	..
Wood .....	..	..	..	..	2	..	..
Concrete .....	..	..	..	..	..	..	..
<b>Total .....</b>	<b>1</b>	<b>10,200</b>	<b>1</b>	<b>10,000</b>	<b>3</b>	<b>5,075</b>	
Year to date	No.	Keels Laid		Launched		Delivered	
		Deadweight tons	No.	deadweight tons	No.	Deadweight tons	No.
Contract steel .....	25	228,150	158	1,204,718	220	1,486,139	
Requisitioned steel .....	6	61,400	7	61,770	10	82,870	
Composite .....	..	..	..	..	..	..	..
Wood .....	..	..	16	31,050	43	84,650	
Concrete .....	..	..	..	..	3	18,500	
<b>Total .....</b>	<b>31</b>	<b>289,550</b>	<b>181</b>	<b>1,297,538</b>	<b>276</b>	<b>1,672,159</b>	
Total to date	No.	Keels Laid		Launched		Delivered	
		Deadweight tons	No.	deadweight tons	No.	Deadweight tons	No.
Of 1300 Contract steel .....	1278	8,597,245	1172	7,649,245	1073	6,842,187	
Of 384 Requisitioned steel .....	384	2,687,266	374	2,585,966	372	2,572,666	
Of 18 Composite .....	18	63,000	18	63,000	18	63,000	
Of 589 Wood .....	589	1,885,250	589	1,885,250	570	1,881,250	
Of 12 Concrete .....	12	73,500	7	36,000	6	28,500	
<b>Of 2303 Grand total.....</b>	<b>2281</b>	<b>13,306,261</b>	<b>2160</b>	<b>12,219,461</b>	<b>2039</b>	<b>11,387,603</b>	



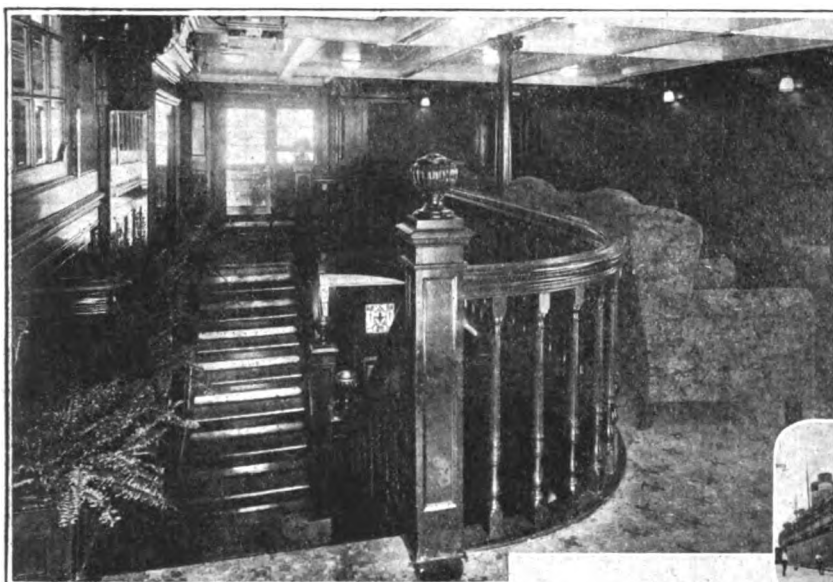
# Late Flashes On Marine Disasters

Brief Summaries of Recent Maritime Casualties—  
A Record of Collisions, Wrecks, Fires and Losses

NAME OF VESSEL	DATE	NATURE	PLACE	DAMAGE RESULTING
Amelia Zeman	June 10	Missing	At sea	Not known
Anita	June 15	Sprung leak	At sea	Total loss
Astoria	June 22	Short coal	Halifax	None
Alloway	July 3	Grounded	Osaka Bay	Not stated
A. M. Byers	June 12	Grounded	Mission Point	Slight
Baltic	July 9	Grounded	Off Cove island	Not stated
B. Lyman Smith	June 12	Collision	Whitefish Point	Heavy
Boston	June 12	Collision	Lake Huron	Not stated
Beryl M. Corkurn	June 13	Collision	At sea	Slight
Brookdale	June 21	Fire	Point No Point	Not stated
Berwyn	June 10	Struck rock	Arabian sea	Sank
Borgerstad	June 18	Grounded	Off Thomas Point	Not stated
Bonia	June 18	Sprung leak	Off Point Judith	Sank
Bersensfjord	June 5	Fire	At sea	Not stated
Blue Eagle	June 25	Tanks leaking	At sea	Not stated
Campos	June 15	Grounded	Victoria	Not stated
Cowanshannock	June 12	Boiler trouble	At sea	Not stated
C. Maud Gaskell	June 29	Grounded	Handkerchief Shoal	Not stated
Cotopaxi	June 17	Collision	Havana	None
Corboba	May 24	Abandoned	Off Socotra Island	Fire
Cambridge	June 4	Disabled	At sea	Broke turbine
Calvin Austin	June 28	Struck obstruction	Long Island sound	Broke blade
Corona	July 3	Collision	New York harbor	Grounded
Comus	July 12	Collision	Off Atlantic City	Not stated
Derwent	June 20	Grounded	Off Cape Charles	Not stated
Dauperata	July 5	Repairs	Rotterdam	Leaking
Eva A. Dananhowe	June 18	Grounded	Sagamore Beach	Broke up
Eastern Queen	June 23	Disabled	At sea	Broke rudder
Eise	June 16	Heavy weather	At sea	Damaged sails, deck
E. J. McKeever	June 17	Heavy weather	Fishers island	Grounded
Edgewood	July 5	Repairs	St. Thomas	Leaking
Emory L. Ford	June 16	Repairs	Fairport	Broke connecting rod
E. J. Earling	June 15	Grounded	Off Mackinaw	None
E. W. Ozlebay	June 29	Grounded	St. Helena island	Heavy
E. B. Morris	July 3	Grounded	Eric harbor	Not stated
E. H. Utley	July 5	Grounded	Eric harbor	Not stated
Frontera	June 9	Fire	At sea	Heavy
Fort Russell	June 22	Repairs	Fayal	Engine trouble
Florence & Lillian	June 21	Leaking	Off Seaconnet Point	Heavy
F. R. Hazard	June 12	Collision	Whitefish Point	Heavy
Great City	June 11	Grounded	Off Bordeaux	None
Gladys & Nellie	June 30	Fire	Savannah	Total loss
Grayson	July 2	Grounded	Off Ireland	Abandoned
Gelnrosa	July 4	Foremast collapsed	Trieste	Slight
Hollywood	June 26	Repairs	Algiers	Leaking
Havo	June 25	Lost blades	At sea	Not stated
Halesius	June 25	Fire	At sea	Cargo wetted
Heroine	June 19	Sunk	Off Point Judith	Total loss
Heathside	June 23	Struck ice	At sea	Damaged bow
Hamonic	July 7	Grounded	Off Harbor Beach	Not serious
Hartside	July 2	Collision	At sea	Leaking
H. H. Rogers	June 15	Collision	Lorain	Slight
Imlay	June 14	Mach. trouble	At sea	Not stated
Ile de Ceylon	July 3	Broke steam pipe	At sea	Not stated
Joan of Arc	June 15	Grounded	Pisagua	Damaged keel
John Adams	June 20	Squall	Pensacola	Blades stripped
John Roach	July 6	Repairs	Colombo	Engines disabled
Kermit	June 16	Explosion	Hamburg	Heavy
Koyo Maru	June 30	Grounded	Serrana Bank	Leaking
Lake Frampton	July 12	Collision	Off Atlantic City	Sank
Lake Elkwater	June 15	Lost blade	At sea	Not stated
Lewiston	June 26	Distress	At sea	Leaking
Lake Flovilla	June 23	Leaky steam pipe	At sea	Not stated
Lake Elwin	July 5	Grounded	Gut of Canso	Not stated
Luther Little	July 6	Grounded	Fort Liberte	Not stated
Lackawanna Valley	July 1	Repairs	Fayal	Boiler trouble
Lizzie	June 29	Struck obstruction	Off Staten Island	Beached

NAME OF VESSEL	DATE	NATURE	PLACE	DAMAGE RESULTING
Lake Glasco	July 2	Fire	Baltimore	Not stated
Lakeport	June 26	Collision	Welland Canal	Not stated
Louis Davidson	July 10	Grounded	Eric harbor	Not stated
Lynch	July 7	Collision	Duluth	Damaged plates
Magyarorszag	June 16	Fire	Venice	Heavy
Mojave	June 18	Lost steerer	At sea	Not stated
Magmeric	June 21	Boiler trouble	At sea	Not stated
Mary M. Mosher	June 18	Grounded	Langley Island	Total loss
Manchester Division	June 7	Grounded	St. Clair river	None
Margaret Spencer	June 13	Grounded	Little Bahama	Heavy
Mobile	June 25	Mach. trouble	At sea	Not stated
Manham	July 3	Repairs	Algiers	Boiler trouble
Maine	July 3	Collision	New York harbor	Hole in side
Modena	July 6	Grounded	Port Indio	Not stated
Maple Heath	June 26	Collision	Welland Canal	Not serious
Morse	July 7	Collision	Duluth	None
Munising	July 10	Grounded	Gull island	None
Nedmac	June 17	Disabled	At sea	Boiler trouble
Nesco	June 27	Lost blades	At sea	Not stated
Omega	June 11	Lost anchors and chain	At sea	Not stated
Oakley C. Curtiss	July 2	Grounded	Off Montevideo	Leaking
Portalo Plumas	June 22	Collided with dock	Sabine	Not stated
Polar Star	June 23	Broke pump rod	At sea	Not stated
Pascagoula	June 13	Piston leaking	English Channel	Not stated
Pauline M. Cummins	June 5	Grounded	Bahamas	Total loss
Puritan	June 28	Heavy weather	At sea	Sails split, leaking
Philadelphia	July 4	Boiler trouble	At sea	Not stated
Richmond	July 4	Collision	Hampton Roads	Lost bowsprit
Rufus P. Ranney	June 15	Collision	Lorain	Damaged plates
Rochester	July 8	Disabled	Lake Superior	Damaged wheel
Runa	June 17	Struck by lightning	At sea	Mast snapped off
Rio Petro	June 13	Collision	At sea	Not known
Red Mountain	July 3	Repairs	St. Michaels	Boiler leaking
Samnanger	June 17	Collision	Rio Janeiro	Slight
Santa Rita	June 22	Fire	Port Arthur	Slight
San Giorgio	June 26	Fire	Cartagena	Not stated
Saturno	June 17	Collision	Havana	Sank
Somerset	June 28	Damaged rudder	Aarhus	Not stated
State of Ohio	July 11	Grounded	Maumee River	None
Sheaf Hart	June 11	Grounded	Elber river	Not stated
South Bend	July 6	Grounded	Port Angels	Not stated
Santa Fe	July 3	Repairs	Jacksonville	Engine trouble
Tahiti	June 16	Repairs	Victoria	Broke oil heater
Tarjide	June 10	Disabled	At sea	Leaking
Utica	June 30	Fire	Erie	Not serious
Virginian	June 17	Collision	Rio Janeiro	Slight
Vincennes Bridge	June 15	Boiler trouble	At sea	Not stated
Vanada	June 11	Mach. trouble	At sea	Not stated
Vancouver	June 13	Broke rudder	At sea	Not stated
West Jester	June 15	Grounded	Saratoga Spit	Not stated
Wico	June 22	Grounded	Off Dardanelles	Jettisoned cargo
West Mingo	June 21	Broke blade	At sea	Not stated
Wm. C. May	June 21	Fire	At sea	Total loss
West Lashaway	June 22	Repairs	Gibraltar	Engine trouble
West Chatla	June 19	Fire	At sea	Not stated
West Hassayampa	June 11	Fire	Kobe	Cargo destroyed
Wasco	June 13	Mach. trouble	At sea	Not stated
Willdomino	July 3	Mach. trouble	At sea	Not stated
West Catanace	July 3	Repairs, fuel	Bermuda	Disabled
West Hembre	July 5	Repairs	Saigon	Engine trouble
Wisla	July 3	Repairs	Bermuda	Engine trouble
West Nosska	July 7	Grounded	Cutoff Channel	Not stated
Wyandotte	June 12	Collision	Lake Huron	Not stated
William A. Rogers	July 5	Grounded	Eric harbor	Not stated
Yuri Maru	June 16	Lost blades	At sea	Not stated
Zaca	June 19	Disabled	At sea	Boiler trouble

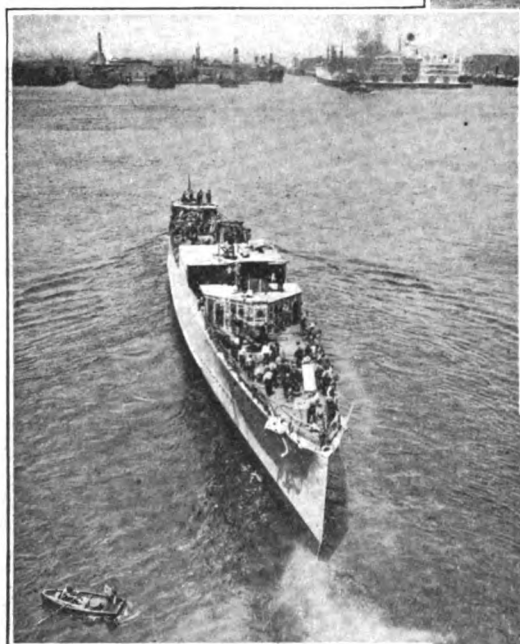
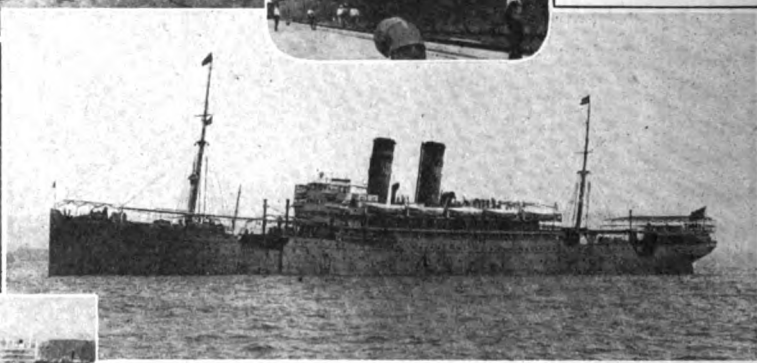
# Photographs from Far and Near



Transport Mount Vernon is shown in the small view below in the upper Miraflores lock at Panama. She is the second largest ship passing through the canal. The big liner was transporting Czecho-Slovak soldiers and German prisoners from Vladivostok to Hamburg

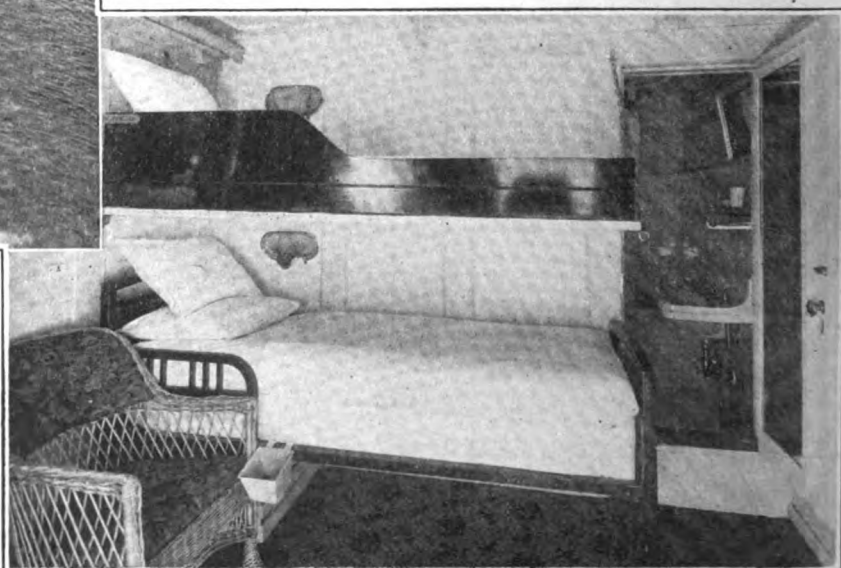


Torpedo boat destroyer Hopkins entering the Delaware river from the Camden yard of the New York Shipbuilding Corp.

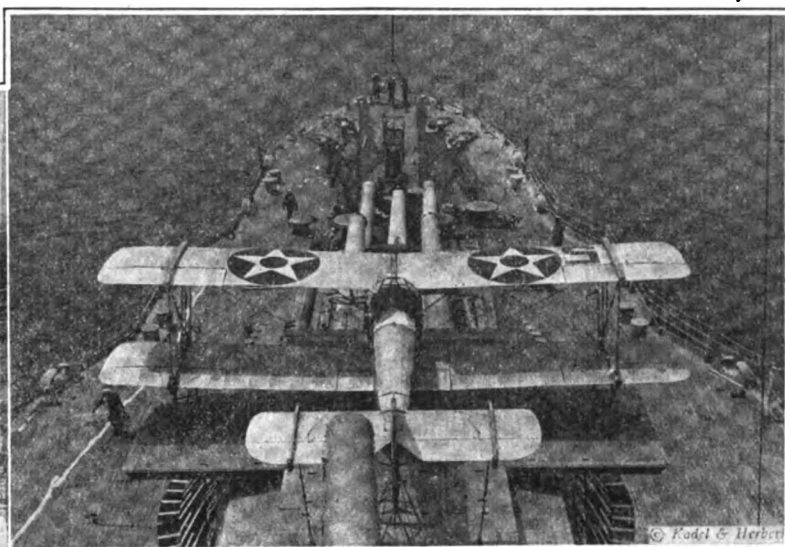
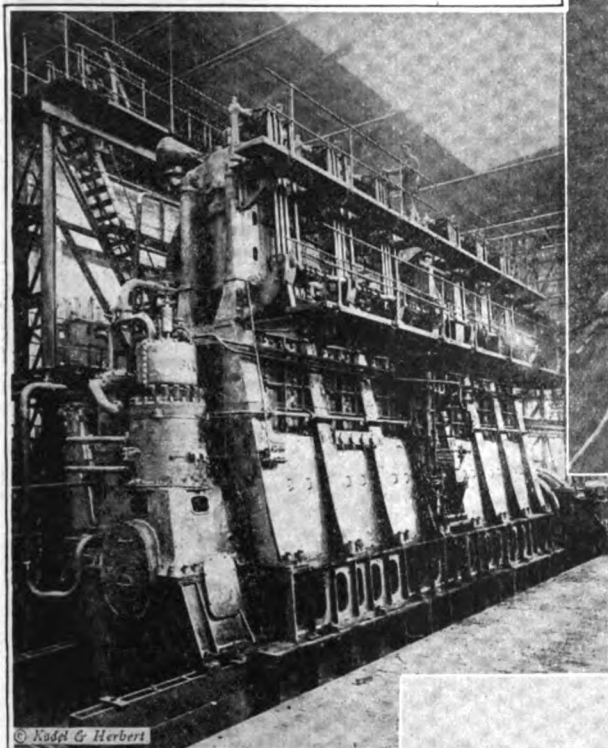


Former German liner Martha Washington is now running as an express steamer between New York and the east coast of South America. In reconditioning the vessel after her hard war service, successful efforts were made to fit her out luxuriously for carrying passengers. The view of the grand staircase illustrates the character of decorations used

In reconditioning the Martha Washington, special attention was given to staterooms and the excellence of the accommodations provided is revealed in the view at the right

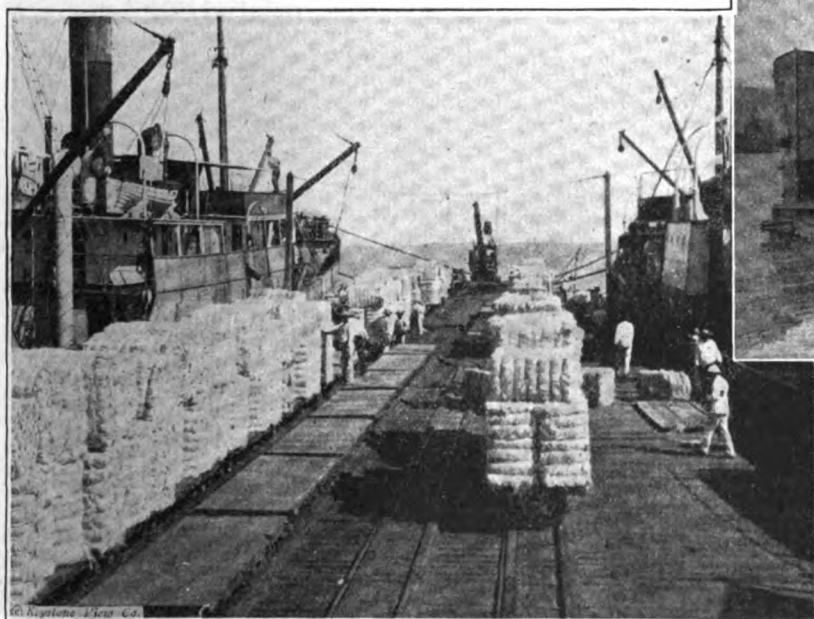


# Latest Marine News in Pictures



Uncle Sam's dreadnaughts now carry airplanes, the view above showing one aboard the U. S. S. Nevada

World's largest powerboat, Afrika, is propelled by the large twin, diesel-type internal combustion motors shown above. Another, but smaller, power boat, U. S. Eagleboat 25, built by Henry Ford, capsized in a squall in Delaware river. Rescuers are shown cutting through the hull to rescue an imprisoned engineer



Copper billets as well as iron ore form part of the cargo carried on the Great Lakes. View shows 1400 tons ready for loading at Houghton, Mich. Natives loading bales of sisal fiber at Progreso, Yucatan, Mexico, are shown at left

# Late Decisions in Maritime Law

## Legal Tips For Ship Owners and Officers

Specially Compiled for The Marine Review

By Harry Bowne Skillman

Attorney at Law

**U**NDER the maritime law of this country, a manual turning over of cargo by shipowners to an independent warehouseman, or even to the consignee itself, does not of itself operate of necessity to discharge their lien for freight. Where the intent of the shipowners in making such delivery is merely to discharge the cargo, and not to deliver it, their lien for freight remains in full force.—Howard vs. 9889 Bags of Malt, 255 *Federal Reporter* 917.

The breaking of the launching ways by reason of which delivery of a ship by the builders was delayed did not operate as an extension of time fixed for delivery, under the construction contract providing that if prompt delivery "is prevented by 'force majeure,' then the time for delivery shall be extended correspondingly," the term "force majeure" being defined as "acts of God, strikes, lockouts (reasonably justified) or other industrial disturbances, war, blockades, insurrections, epidemics, landslides, lightning, earthquakes, arrest and restraint of rulers and people, explosions, fires, floods, and other like causes."—Peterson vs. Noots, 255 *Federal Reporter* 875.

While an admiralty court of the United States is under no obligation to entertain jurisdiction where all the parties are foreigners, yet it also may entertain jurisdiction of a suit between aliens in civil causes of admiralty and maritime jurisdiction and is inclined to do so when it is necessary to prevent a failure of justice and if the rights of the parties would thereby be best promoted.—Cunard Steamship Co., Ltd. vs. Smith, 255 *Federal Reporter* 846.

Where a right of action for causing death is given by a statute of a state, a court of admiralty will enforce it, but enforce it in accordance with the principles of maritime law, unaffected by the provisions of any state or local law. The reason for this rule is stated in the case of Western Fuel Co. vs. Garcia, 255 *Federal Reporter* 817, as follows: "Otherwise one admiralty court might readily be required to rule one way upon a certain state of facts, and another to rule another way upon a precisely similar state of facts, depending upon conflicting state or local laws, thus working the practical destruction of a uniform maritime law."

Moderate speed implies the ability of a vessel to stop her headway in the presence of danger, it was held in the case of the PEMAQUIB, reported in 235 *Federal Reporter* 709. Vessels in a fog,

it was further said, are bound to reduce their speed to such a rate as will enable them to stop in time to avoid a collision after the approaching vessel comes in sight, provided such approaching vessel is herself going at the moderate speed required by law.

Where vessels are on crossing courses, the privileged vessel is entitled to assume that, although it was proposed to her to give way by the exchange of two-whistle signals, rejection thereof by her would result in navigation in conformity to the starboard hand rule. She is justified in letting some time elapse, in order to ascertain whether the other vessel will continue on or will port her helm, and if collision results, she will not be held liable. "The privileged vessel should not be too quick in assuming that the burdened vessel is going to yield to her although its behavior may be erratic."—MUSCONETONG, 255 *Federal Reporter* 675.

It was said in the case of the WANOLA, 255 *Federal Reporter* 599, that while salvage is a proper claim, even though the ship was saved in the process of saving the cargo, still the fact that the two services were rendered as a part of one transaction has some bearing upon the amount to be awarded for the salvage of the ship. Sum of \$500 awarded for salving vessel in process of salving a cargo worth \$3000.

The case of the HATTERAS, 255 *Federal Reporter* 518, is authority for the statement that towage is not a "necessary" within the act of congress of June 23, 1910, giving a lien on vessels to persons furnishing "repairs, supplies or other necessities," even as to barges without motive power of their own.

While courts of admiralty are not governed by any statute of limitations, the case of Elder Dempster & Co. vs. Talge Mahogany Co., 256 *Federal Reporter* 65, holds the laches or delay in the judicial enforcement of maritime claims constitutes a valid defense, where the circumstances are such that it is to be inferred that the party proceeded against was prejudiced by the delay because of it having the effect of depriving him of evidence and the means of effectively defending himself.

In the case of Rederiaktiebolaget Transatlantic vs. Eklund, 256 *Federal Reporter* 95, it appeared that after the arrival of the steamship BALTIC in port, and with less than five days before the making of demand for payment of

half the wages earned, a demand of seamen for payment of a specified amount was complied with, and the amount so demanded and paid was less than half the wages the seamen had earned. It was held that the compliance with the earlier demand did not keep the later demand from being one the seamen were entitled to make. The court further held that advances, though made in foreign ports, are subject to be deducted in ascertaining the amount of wages earned, and that amounts which the shipowner has obligated himself to pay to a third party as part of a seaman's wages stand on the same footing as payments on his wages to the seaman himself.

Failure of a seaman to keep hold of a woman passenger stepping from the platform of the ship's companionway into a life boat until her foot had actually reached the thwart, or until she had become firmly planted, would not constitute negligence, it was decided in the case of Goode vs. Oceanic Steam Navigation Co., Ltd., 251 *Federal Reporter* 556. In making this decision, the court said, that the case turned precisely upon the question whether the seaman should have apprehended that the passenger would rely upon his support for so long as she in fact did. "It seems to us in common experience that, in steadying a woman who is making a step under these circumstances, one does not ordinarily keep the support until her foot actually reaches the lower step, particularly where the step, as here, was only 6 inches, no more than, if as much as, the ordinary riser of a staircase. The purpose is to insure the balance of the person assisted until the weight of the body has begun to leave the leg which remains on the higher step and has begun to fall, so as to be caught by the lower foot. Only in the case of decrepit persons, whose balance in landing is doubtful, do we think it necessary that the support should be kept until the foot has been steadied upon the lower step."

Under the rule that salvage is both compensation and reward and should be liberal, to encourage prompt, energetic, and efficient service in the relief of vessels in peril, the court, in the case of Steamer Avalon Co. vs. Hubbard Steamship Co., 255 *Federal Reporter* 854, increased an award of \$2000 to \$5000, the facts showing that the salving vessel was worth \$200,000 and towed another steamship with a broken crankshaft and worth, with cargo, \$481,000, from a point 14 miles off the Oregon coast to Astoria, Oreg.



# Practical Navigation Guide--IV

## Determining Longitude by Chronometer with a Run—Correcting the Compass—Figuring the Azimuth of Any Heavenly Body

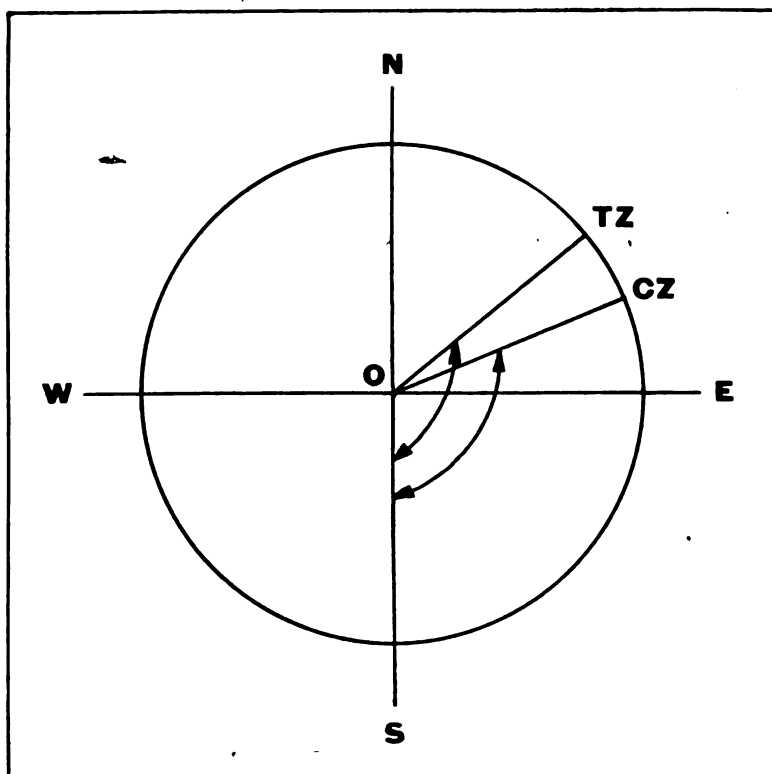
BY V. G. IDEN

**S**UPPOSE the ship has had engine trouble. Several days pass and due to a fog it has been impossible to make an observation. Considerable doubt would exist as to the exact position of the ship. One morning, the sun comes up bright and an observation is taken. We do not attempt to work this up for latitude or longitude immediately but wait until noon, carefully observing the course sailed and the distance in the meantime. At noon, another observation of the sun is taken and this is worked up for the latitude.

With the noon latitude found and the course and distance sailed since the morning observation known, it is now possible to work back by deducting the change in latitude for the known departure. Now having found the morning latitude, it is possible to work out the longitude the ship was in at the time of the morning observation.

Again by applying the traverse tables, which give longitudinal distance for a specific course and middle latitude, we are able to find the longitude of the ship at the time of the

FIG. 9—  
HOW COMPASS  
ERROR IS  
PLOTTED



noon observation. This then establishes conclusively the position of the ship and at last she is "found."

Such a method of re-establishing the correctness of the course of a ship is known as the "back and fill." It is one which navigators find very serviceable.

Take the case of a ship coming out of a fog of several day's duration, with the captain uncertain of his position. On April 6, 1919, for instance, in the morning the fog suddenly clears and he takes a morning observation. It is a. m. at the ship, and the chronometer time is 1 hour, 35 minutes, 50 seconds, p. m. It is known that the chronometer is 29 seconds slow. The observed altitude of the sun is 38 degrees, 14 minutes, 30 seconds. The indicated error of the sextant is minus 1 minute, 30 seconds. The height of the eye was 40 feet.

The captain steered his ship north 42 degrees west until noon, during which time he traversed a distance of  $46\frac{1}{2}$  miles. At noon he took another observation, which showed the sun in an altitude of 59 degrees, 13 minutes,

FIG. 8—  
HOW ANGLE  
OF THE  
AZIMUTH IS  
FOUND

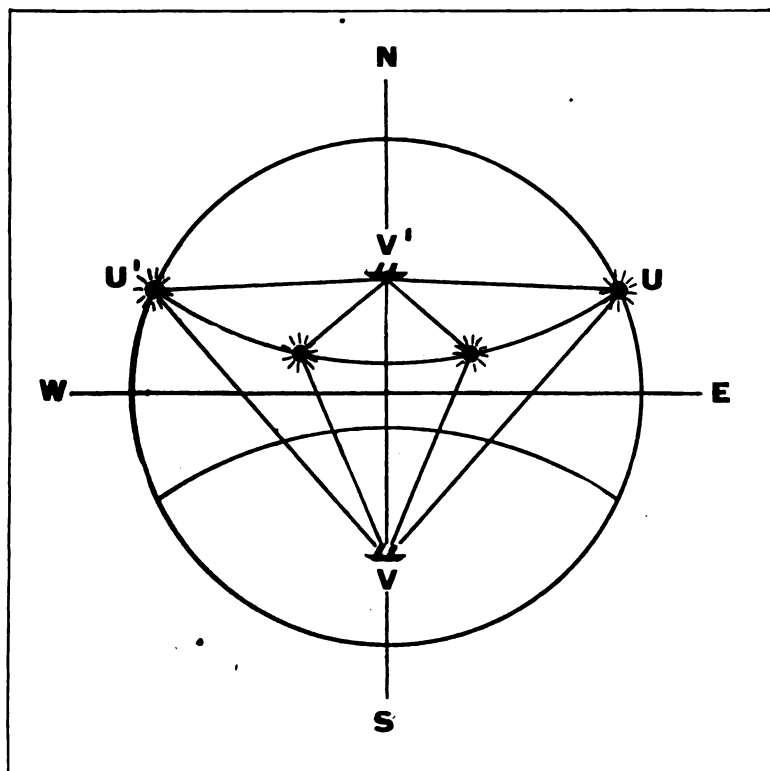


Table VI

# Determining Course by Back and Fill Method

Observed altitude	59 deg. 13 min. 40 sec. S	
Indicated error	1 min. 30 sec.	
Alt. Cor.	59 deg. 12 min. 10 sec.	(Bowditch, T.46)
True altitude	59 deg. 21 min. 23 sec. S	
Z. D.	30 deg. 38 min. 32 sec. N	
Cor. Dec.	6 deg. 13 min. 58 sec. N	
36 deg. 52 min. 30 sec. N Lat. at noon.		
Since the morning observation the ship has sailed on a course N 42 degrees W. For 42 degrees and a distance of $46\frac{1}{2}$ miles, Bowditch, Table 2 will give a difference of latitude of 34.5 miles, which equals 34 min. 30 sec.		
Latitude at noon	36 deg. 52 min. 30 sec. N	
Deduct Lat. correction	34 min. 30 sec.	
Morning Latitude	36 deg. 18 min. 00 sec. N	
With this morning Latitude reckoned we now work out the morning sight as follows:		
Observed altitude	38 deg. 14 min. 30 sec.	
Indicated error	1 min. 30 sec.	
Alt. Cor.	38 deg. 13 min. 00 sec.	(Bowditch, T.46)
True altitude	38 deg. 21 min. 41 sec.	
Latitude	36 deg. 18 min. 00 sec.	secant... 0.09370
Polar distance	83 deg. 49 min. 50 sec.	cosecant... 0.00252
2) 158 deg. 29 min. 31 sec.		
$\frac{1}{2}$ Sum	79 deg. 14 min. 45 sec.	cosine... 9.27073
True altitude	38 deg. 21 min. 41 sec.	
Remainder	40 deg. 53 min. 04 sec.	sine... 9.81592
		19.18287
Dec. April 6—	6 deg. 09 min. 25.2 sec.	(Bowditch, Table 45) 20h 56m 12s Local Apparent Time
	01 min. 25.3 sec.	hourly variation 56.87 sec.
		x1.5
		85.305—1 min. 25.3 sec.
	6 deg. 10 min. 50 sec.	
	90 deg. . . . .	
Polar distance	83 deg. 49 min. 50 sec.	
Chronometer time	6d 1h 35m 50s	Equation of time 2m 42.4s hourly variation 0.726
Chronometer correction	29s	1.0 x 1.5
		1.0940s
Equation of time	6d 1h 36m 19s	2m 41s
	6d 1h 33m 38s	Greenwich apparent time
	6d 1h 33m 38s	Greenwich apparent time
	5d 20h 56m 12s	Local apparent time
	4h 37m 26s	(Bowditch, Table 7) 69 deg. 21 min.
		30 sec. W Longitude in the morning
Now it is possible to work up from this morning longitude with the use of Bowditch Table 2, knowing that the ship has sailed N 42 degrees W a distance of $46\frac{1}{2}$ miles. This gives a departure of 31 miles, on a middle latitude of 37 degrees. For 37 degrees the latitude 31.1 gives a distance of 39 miles, which equals 39 minutes.		
Longitude left	69 deg. 21 min. 30 sec. W	
Difference of Longitude	39 min. 00 sec.	
	70 deg. 00 min. 30 sec. W Longitude at noon	

the direction of one of the poles and the intersection of the vertical plane passing through the body observed. Normally the body observed is the sun, although any heavenly body may be used. We will suppose that the sun is used. If it is morning and the ship is in north latitude, the angle of the azimuth would naturally be north and east; in the afternoon the azimuth angle would be north and west. When the ship is in south latitude, the azimuth of the morning sun would be south and east, and the azimuth of the afternoon sun would be south and west.

It is assumed that the latitude and longitude of the ship has been calculated. We then note the direction of the sun by the compass and note the local time. At this instant an altitude observation of the sun is taken. Inasmuch as the compass used is most likely to be a magnetic compass, its variation will already have been estimated.

The Greenwich time is figured out by translating the longitude into time and applying it to the local time. Having found Greenwich time, we get the declination and its correction with the use of the nautical almanac and take from this the polar distance.

From the observed altitude, now the true altitude is calculated, by applying the indicated error of the sextant and the height of eye correction. We add the true altitude, the latitude and the polar distance and take one-half the sum. From this one-half sum, we subtract the polar distance which gives a remainder. The rule is to add the secant of the angle of the true altitude, the secant of the latitude, the cosine of the one-half sum, and the cosine of the remainder. The total of these four logarithmic figures will be the logarithmic haversine, corresponding to which in Bowditch Table 45 will be a natural haversine, and this will be the natural haversine of the angle which is supplementary to the angle of the azimuth.

Subtract this angle from 180 degrees, we have the true azimuth (AZ) of the sun. The direction of this angle is important. It is either north or south depending upon which pole is closest to the ship, and is east if the observation was taken in the morning and west if taken in the afternoon. This principle is illustrated in Fig. 8. V is the vessel in south latitude and in the morning the sun is first at U. The angle of the azimuth is then the angle SVU and the direction of that angle would be south and east. During the afternoon, with the sun at U', the angle of the azimuth would be the angle SV'U' and the direction south and west.

We have already noted the bearing

40 seconds south. The chronometer time was then 4 hours, 37 minutes, p. m. The method of determining the ship's position is worked out in Table VI.

An alert navigator will forever be watchful of his compass, as the least deviation or variation may make a difference of many miles in the course. Many rough and ready methods of estimating such compass error are known, but the most accurate is from the azimuth and amplitude. The azimuth of a body is the arc of the horizon intercepted between the meridian and the vertical circle passing through the body. The amplitude is measured from the east point at rising and from the west point at setting, and, if added to or subtracted from 90 degrees, will agree with the azimuth of the body when in the true horizon.

The azimuth is the angle between

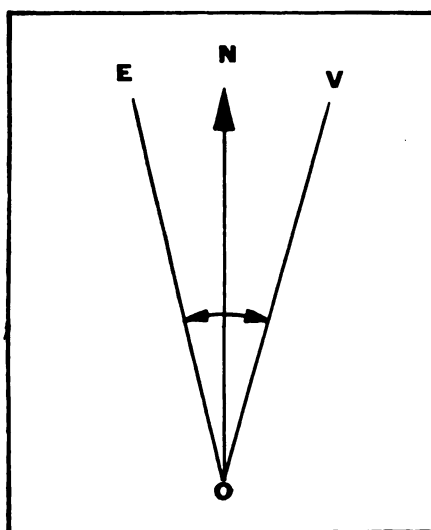


FIG. 10—DEVIATION WEST

of the sun by compass, which bearing is taken as the supplement of the compass azimuth. That bearing is consequently subtracted from 180 degrees. It would appear then to be comparatively simple to figure the compass error from these two known angles, but practical navigators sometimes find this confusing. A simple method is to plot the two angles out as in Fig. 9. The angle *SOC* is the compass azimuth and the angle *SOT* is the true azimuth. The true is to the left of the compass, therefore, the compass error is westerly.

Having found the total compass error, it is next necessary to find the deviation. If it is a magnetic compass we already know the variation and it must be remembered that this variation

utes, the height of the eye being 18 feet. The compass variation is known to be 15 degrees 45 minutes E and the ship is headed south. We wish to find the true course and the deviation. The method is illustrated in Table VII.

There are other ways of figuring out the same result. For instance by subtracting the variation from the compass bearing we find the magnetic bearing, which subtracted from 180 degrees will give the magnetic azimuth. Having the true azimuth and the magnetic azimuth, we have but to subtract the one from the other to get the deviation. It would be wise, however, to plot these two angles to make certain that the direction of the deviation is correctly named. By this method it would work out as follows:

C. B. 67 deg. 30 min.  
Var. 15 deg. 45 min. E

M. B. 83 deg. 15 min.  
180 deg.

M. Z.—S 96 deg. 45 min. E  
T. Z.—S 124 deg. 34 min. E

Dev. 27 deg. 49 min. W

Again we might apply the variation to the true azimuth which would give the true magnetic bearing. Applying this last to the compass azimuth we obtain the deviation. In this case it would work out as follows:

T. Z.—S 124 deg. 34 min. E  
Var.— 15 deg. 45 min. E

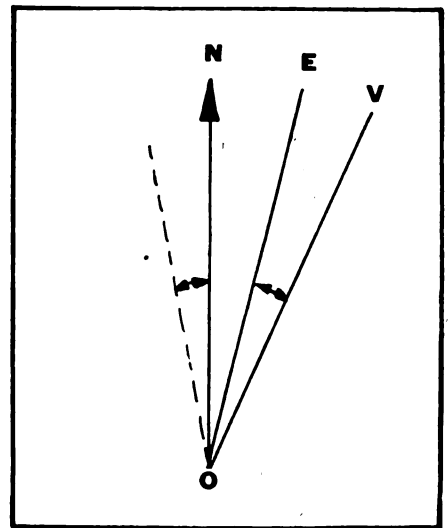


FIG. 12—DEVIATION WEST

T. M. B.—140 deg. 19 min.  
C. Z.— 112 deg. 30 min.

Dev. 27 deg. 49 min. W

In this example the ship has been heading south (180 degrees) and the compass error was west (12 degrees 4 minutes), so that the course by new compass would be 167 degrees 4 minutes, or by old compass S 12 degrees 4 minutes E.

(To be continued)

The 9400-ton steel ship *SINASTA*, being completed at San Francisco, has been assigned to the Columbia-Pacific Shipping Co. for operation in tramp service.

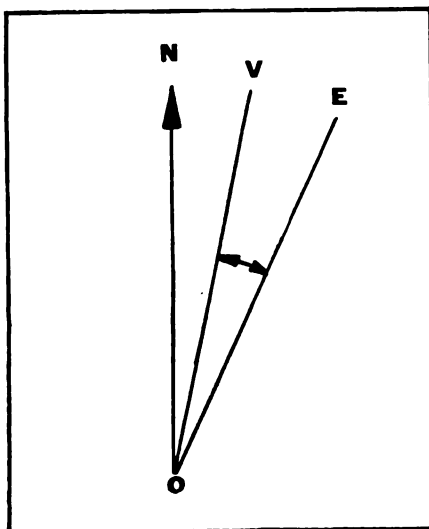


FIG. 11—DEVIATION EAST

is included in this total error. It is advisable here again to plot out the two angles as in Figs. 10, 11 and 12. In the first of these diagrams, the angle *NOV* is the angle of variation which is easterly, and the angle *NOE* is the angle of total compass error which is westerly. It is obvious here that the deviation is the combination of these two or the angle *VOE*. In Fig. 11, the total error and the variation are designated similarly, but since both are easterly, the deviation is the difference between the two or the angle *VOE*. Another application of this principle is illustrated in Fig. 12 and this principle may be applied in figuring the direction of the deviation for any combination of circumstances.

To illustrate practically this principle of finding the compass deviation and error, assume that on April 16, 1919, the ship was in latitude 37 degrees, 18 minutes S and longitude 93 degrees 22 minutes W. The compass bearing is ENE. The local mean time is 8 hours and 43 minutes, a. m. The observed altitude is 23 degrees 24 min-

Table VII

### Method of Determining Compass Variation

Local mean time	16d 8h 43m 00s a.m. (If it were p.m. we would let this stand but since it is a.m. we must subtract a day and add 12 hours)
Local mean time	15d 20h 43m 00s
Longitude in time	6h 13m 28s W—93 deg. 22 min. W
Greenwich mean time	16d 2h 56m 28s
Declination for Apr. 16—	9 deg. 50 min. 36.4 sec. hourly variation
Correction	2 min. 40.5 sec.
True Declination	9 deg. 53 min. 17 sec. N
Polar Distance	99 deg. 53 min. 17 sec. S
(No. Indicated error) height of eye	23 deg. 24 min. 00 sec.
	9 min. 43 sec.
Latitude	23 deg. 33 min. 43 sec. ....secant..... 0.03782
Polar distance	37 deg. 18 min. 00 sec. ....secant..... 0.09937
	99 deg. 53 min. 17 sec.
	2) 160 deg. 45 min. 00 sec.
Sum	80 deg. 22 min. 30 sec. ....cosine..... 9.22361
Polar distance	99 deg. 53 min. 17 sec.
Remainder	19 deg. 30 min. 47 sec. ....cosine..... 9.97430
	19.33510/Logarithmic haversine of
	0.21632/Natural haversine.21632
	0.21632/Natural haversine of
	55 deg. 26 min.
	180 deg.
	67 deg. 30 min.
180 deg.	55 deg. 26 min.
S124 deg. 34 min. E True Azimuth (T.Z.)	Comp. Bearing ENE—67 deg. 30 min.
True Azimuth (T.Z.)	S124 deg. 34 min. E
Comp. Azimuth (C.Z.)	S112 deg. 30 min. E. Compass Azimuth (C.Z.)
	12 deg. 04 min. W —Compass Error
	15 deg. 45 min. E —Compass Variation
	27 deg. 49 min. W —Compass Variation (See Figs. 10, 11 and 12.)

## Completing Big Pier

Pier B, the substructure of which has been completed at Smith cove, Seattle, by the port of Seattle, not only is the largest commercial ocean pier but also the largest pier of any kind in North America. It is 2580 feet in length, 365 feet in width and has accommodations for berthing 11 ocean steamships at one time. The transit shed is 500 feet long with a width of 120 feet for the first story and 130 feet for the second story.

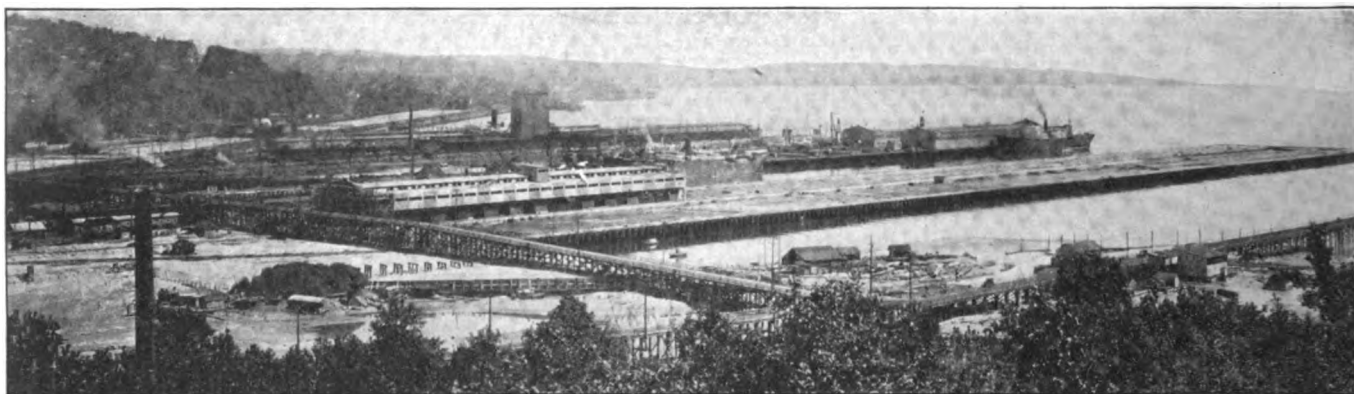
Seattle's assertion of having the largest pier was recently contradicted by Chicago which claimed its municipal recreation pier was of greater size. Investigation shows that Seattle's new terminal has an area of 946,860 square feet while the area of the Chicago pier is 876,000 square feet. It was found that the next largest com-

masted, the engines are there to be called into service. If anchored near a lee shore with no chance of crawling off—start the engines. Had the LAWSON been equipped with auxiliary power, she could have been saved. And the LAWSON is but one of thousands of good ships that have piled ashore; not through lack of seamanship but because ability to make sail quickly was the only means at hand to save the vessel from destruction.

## Right Capsized Ship

In righting the capsized wooden steam schooner FRED BAXTER, an ingenious scheme was used, the plan having attracted attention along the entire Pacific coast. Special cribs were built on the vessel's hull and these were filled with sand to assist in bring-

another crib, 35 feet in length, was built on the same side and 150 tons of gravel were placed. A third crib of the same size also contained 150 tons. When these three cribs were filled with 500 tons, the hull took a sharp list to starboard of 40 degrees. Then the company's wrecking barge was brought alongside to port. Three holes were bored in the keel and into them were fitted huge bolts. To each was fastened a cable capable of standing a pull of 200 tons. The cables were passed down the starboard side of the wreck, under the overturned hull and brought up on the port side where they were attached to the salvage barge with powerful tackles from the donkey engines. Two of the cables were used to heave the ship over and the third to keep her from rolling too far. When all was ready, the donkey engines



PIER B (IN FOREGROUND), NEW TERMINAL AT SMITH COVE, SEATTLE, IS THE LARGEST WHARF IN THE WORLD. PIER A IS SHOWN IN CENTER AND GREAT NORTHERN TERMINALS IN BACKGROUND

mercial pier in North America is that at Halifax, N. S., whose area is 450,000 square feet. According to Seattle port officials, measurement of area is the only fair method of determining size of terminals.

## Modern Sailer Economical

(Concluded from page 459)

future, however, is the auxiliary; no matter what her rig may be. A vessel fitted with crude-oil engines, placed aft for convenience, offers a decided advantage to navigators and one that is beginning to be appreciated. Internal combustion engines take up a certain amount of hold space; to be sure, but the advantage gained through being able to make headway in all kinds of weather should not be undervalued. When a dead beat to windward is encountered, instead of sailing 500 miles to make 250, all that is necessary is to start the engines and plow ahead right in the wind's eye. Again, in light airs, the engines can be used to advantage in decreasing the port-to-port time. If the vessel should happen to be dis-

ing the disabled vessel right side up.

Carrying a deckload of piling, the FRED BAXTER, bound from Everett, Wash., for San Pedro, Cal., began to take water in a tiderip and put into Port Townsend, Wash., with a list of 40 degrees. Soon after reaching calm water, the deckload broke the lashings and went overboard after which the FRED BAXTER capsized, breaking her masts, smokestacks and samson posts used to hold a deckload in place. The underwriters awarded the contract for bringing the wreck to Seattle to the Washington Tug & Barge Co. on a "no cure, no pay" basis.

When Capt. J. C. Brownfield tackled the job he found that a pull of 550 tons would be required to right the hull. No floating equipment on Puget sound has this capacity. Thereupon Captain Brownfield called the law of gravity to his assistance. With keel out of the water, a crib 8 feet long was constructed on the starboard side of the ship's bottom. Two hundred tons of sand and gravel were then dumped into this crib. This weight listed the hull to starboard. Then

hailed on the cables and the hull was speedily righted on an even keel.

After being towed to Seattle, the BAXTER was taken to the old Skinner & Eddy yards where \$70,000 is being spent to rehabilitate the vessel. The upper works and equipment will have to be renewed and considerable time will be required to again fit her for the coasting lumber trade.

Harry Coulby, president of the Pittsburgh Steamship Co., Cleveland, and H. G. Dalton of Pickands, Mather & Co., sailed recently for Southampton, England. They will spend a month motoring through the British isles, and later will visit Belgium.

H. A. Blackburn, formerly export J. F. Duthie & Co., and for a long time chief engineer of this large Seattle shipbuilding plant, died recently at his home in that city.

H. A. Blackburn, formerly export adviser for Pacific ports, is now advertising manager for the Erie Forge Co., Erie, Pa.



# Bits From the Log of Progress

Events of Interest to Those Engaged in Operating,  
Constructing and Outfitting Yards and Ships

**B**RITISH SEAMEN carried their objections to having any relations with German seamen into the recent international seamen's conference at Genoa, Italy. British sailors, it will be recalled, had vowed not to deal with German seamen on account of the inhumanity of the submarine warfare. At the conference, the British sailors objected to the presence of German seamen who had signed a manifesto favoring the submarine campaign. Delegates of the allied nations as well as many of the neutrals supported this position and the German delegates at first were excluded from all workmen's conferences and meetings. Later the question was settled when the German delegation, acting under authority of their government, issued a declaration deploring the submarine tactics and affirming the intention of the German government to compensate the victims. The statement plainly admits the wrongs of submarine warfare and acknowledges a national obligation to repair losses.

\* \* \*

PREWAR SHIPPING service of the Union Steamship Co., Ltd., between San Francisco and Sydney, Australia, will be restored. All of its vessels will be converted to oil burners, an oil supply depot being planned at Sydney adjoining the company's coal station. Oil burners have experienced difficulties recently at Sydney in getting fuel supplies and two American ships recently were refitted for coal in order to reach the nearest oil station.

\* \* \*

JOHN BARTON PAYNE, secretary of the interior and former chairman of the shipping board, in an effort to develop Alaskan resources has approved the report of the special committee recommending that federal supervision of Alaskan affairs be consolidated and that the two American shipping lines now serving Alaskan ports be combined to obtain greater economy and efficiency. These lines are the Pacific Steamship Co., and the Alaska Steamship Co.

\* \* \*

ASSURANCES THAT the first of the five 535-foot, 21,000-ton passenger steamships allocated to the Pacific Steamship Co. for operation in the

Seattle-Oriental route will be ready for delivery Sept. 28, have been given by Admiral W. S. Benson, chairman of the shipping board, to A. F. Haines, vice president of the steamship corporation. The chairman said that the board may be able to turn four other big liners over to the Seattle corporation before the end of the year.

\* \* \*

EIGHTY RUSSIANS endangered when the steamer SOLOVEI was imprisoned in the ice of the Kara sea have been rescued by the English icebreaker SVIATOGOR. The Russians were helpless in the Arctic ice for more than three months. Wireless calls for help brought the icebreaker from England. Views of the SVIATOGOR, showing her unusual equipment for ice work, were published in the MARINE REVIEW, July, 1920.

\* \* \*

A PLAN to bring the navigable waterway of the Duwamish river under the supervision of the Seattle port commission has started. The idea of the consolidation is to make the Duwamish waterway a part of the general scheme for port and industrial development. The consolidation, if effected, will add about 6 miles of commercial waterway to the port district. The commercial waterway was established before the port of Seattle was organized.

\* \* \*

REPRESENTATIVES of companies operating in the transpacific trade and organized as the Pacific Coast Oriental Tariff bureau met recently at Vancouver, B. C., to discuss the shipping situation including freight rates. The companies represented included the Pacific Steamship Co., Frank Waterhouse & Co., James Griffiths' & Sons, Struthers & Dixon, Dodwell & Co., the Nippon Yusen Kaisha, the Osaka Shosen Kaisha, the Trans-Oceanic Co., the Pacific Mail Steamship Co., the Toyo Kisen Kaisha, the Columbia Pacific Steamship Co., and the Canadian Pacific Ocean Services.

\* \* \*

IN A LETTER to the MARINE REVIEW, Pardo & Bassani, steamship agents and brokers, Venice, Italy, advise that sailing conditions in the Adriatic sea are nearly normal. They point out that fear of the disturbed political conditions along the Adriatic shores as well as danger

of floating mines has worked to the disadvantage of various ports particularly Venice. The mines, they state, have been well cleared, a special course for steamers having been ordered largely as an extra safeguard.

\* \* \*

THE MINISTER of reconstruction of the German republic has notified German shipyards that 24 vessels now under construction are to be completed at the cost of the German state for delivery to the reparations committee, under the terms of the peace treaty. These vessels include one of 56,000 gross tons register; one of 20,800; one of 18,000; two of 11,517 each; two of 11,000 each; one of 10,900; one of 7500; one of 7370; two of 6486 each; three of 6000 each; one of 4500; three of 3920 each; one of 3800; and four of 2135 each.

\* \* \*

COMPLETE INFORMATION on vessels documented on the Pacific coast of the United States and Hawaiian islands is given in a book now being distributed by the Fireman's Fund Insurance Co., San Francisco. The book, which is being sent free of charge, contains data of interest both to shipowners and masters.

\* \* \*

THE COLUMBIA Pacific Shipping Co., managing agent, has announced a direct freight service, without transshipment, from Portland, Oreg., to Kobe, Yokohama, Dairen, Chinwangtao, Taku Bar, Tsingtau and Shanghai, beginning July 30 with the steamer WEST KEATS, to be followed by the WEST NIVARIA, Aug. 10, and the WEST MOMENTUM, Aug. 30.

\* \* \*

SEVEN STEEL steamers have been assigned to the New York-Seattle service of the Isthmian Steamship line, a subsidiary of the United States Steel Corp. The ships will maintain a fortnightly service. The vessels on the run will be the STEEL WORKER, STEEL EXPORTER, STEEL VOYAGER, STEEL RANGER, STEEL INVENTOR, STEEL SEAFARER, and STEEL TRADER.

\* \* \*

A NEW RECORD has been set by the steamer VESTRIS, which made the voyage from New York to Rio Janeiro in 14½ days, the previous best time having been 15 days and some hours.

# Marine News in a Personal Way

Intimate Gossip About What Leaders in the  
Maritime World Are Doing

**A**LLAN E. GOODHUE has been elected vice president in charge of sales of the Chicago Pneumatic Tool Co., New York. Since May 1, 1919, he has been managing director of the company's English subsidiary, the Consolidated Pneumatic Tool Co., London, England, and a director also of European sales for the Chicago company. Mr. Goodhue for a number of years was connected with the sales department of the Midvale Steel & Ordnance Co. in Philadelphia, Chicago, and Boston, entering government service in March, 1918. From that time until Jan. 1, 1919, he was assistant manager of the steel and raw material section, production division, the Emergency Fleet corporation. He joined the Chicago company on Jan. 1, 1919. He succeeds W. P. Pressinger, who died recently.

\* \* \*

J. A. COATES has been appointed vice president of the Eastern Steamship Lines, Inc., with office at Pier 18, North river, New York.

\* \* \*

CHARLES R. KIRKWOOD has been appointed superintendent of the new fuel oil storage station of the shipping board at Manila, P. I. He was formerly head accountant of the Pacific Steamship Co. in Manila, being transferred there from Seattle.

\* \* \*

J. L. McLEAN is president of the newly organized Muriel Motorship Corp., Seattle. This firm was incorporated to operate the motorship MURIEL which has just been launched at Seattle. H. E. Brown is secretary of the company, the two officers with Bruce C. Shorts, forming the board of directors.

\* \* \*

J. H. PRICE, one of the veteran wooden shipbuilders of the Pacific coast is head of the construction company which has been operating the Anderson yard, Lake Washington, Seattle. This plant has just launched its fourth and last wooden vessel.

\* \* \*

GEORGE A. BRENKER has been made secretary of the newly organized Shippers' Underwriting Agency, Inc., New York, in charge of ocean marine underwriting. For many years, he has been

in the underwriting department of Appleton & Cox. W. A. Thompkins will be in charge of inland marine underwriting. He was with Carpenter & Baker for 10 years and with F. Herrmann & Co., for six years. J. R. Day, for many years with Chubb & Son, will be in charge of the loss department.

\* \* \*

CAPT. WILLIAM FINCH, senior commander of the White Star line fleet, and for 46 years a seaman, was retired



ALLAN E. GOODHUE

on pension when he reached Liverpool in command of the steamer BALTIC, which left New York recently. For his splendid service during the war, King George conferred upon Captain Finch the Order of the British Empire. Captain Finch transported General Pershing and his staff to Liverpool aboard the BALTIC in 1917.

\* \* \*

WILLIAM M. GAVIGAN, formerly manager of the chartering department of Funch, Edye & Co., New York, has been elected to the board of directors. Previous to his connection with Funch, Edye & Co., which began in 1907, he served in the offices of Shewan, Tomes & Co.

\* \* \*

D. R. LECRAW, marine underwriter of the New York branch of the Com-

mercial Union Assurance Co. of London, has been appointed manager of the New York marine branch of the Boston Insurance Co. and John M. Williams, assistant manager, in accordance with the plan of both companies for joining forces in the operation of their marine business in New York.

\* \* \*

J. L. WALLACE, connected with the American Shipbuilding Co., Cleveland, for several years, has been made assistant to A. G. Smith, general manager. Mr. Wallace will have charge of soliciting repair work.

\* \* \*

S. B. FRANCISCO, who until recently was connected with the Globe Transportation Co., has been placed in charge of the Baltimore office of the Columbia Forwarding Co., New York.

\* \* \*

WALTER W. SHERLOCK, who has been connected with the Kerr Chartering Co., New York, for about a year, has been appointed a member of the staff, succeeding Rolf Holvedt who recently resigned. Mr. Sherlock began his career in the shipping business as an office boy for Hannevig & Johnsen. He later became identified with B. W. Loughheed & Co., Ltd., ship brokers, New York, and then went with the shipping board.

\* \* \*

JAMES YOUNG and J. J. MOONEY, formerly assistant manager and superintendent of steel construction, respectively, of the Skinner & Eddy Corp.'s plant at Seattle, have become associated with the Hanlon Dry Dock & Ship Building Co., East Oakland, Cal.

\* \* \*

LIEUT. GEORGE H. WATSON, formerly with the Royal Shipping Corp., E. M. Raphael & Co., and E. G. Taussig & Co., New York, has been placed in charge of the chartering department of Dlibberg, Sagen & Co., Inc., ship brokers, New York.

\* \* \*

H. J. DONOHUE resigned recently from the International Chartering Corp., New York, to join the staff of the chartering department of Davis & Gilchrist, Inc., New York.

\* \* \*

A. J. PASCH has joined the staff of Victor S. Fox & Co., New York.

# Marine News in a Personal Way

Intimate Gossip About What Leaders in the  
Maritime World Are Doing

**CAPT. R. W. ENGLAND**, manager for the Emergency Fleet corporation, in charge of the Great Lakes district, resigned July 1 and is now enroute to Europe for a several months' trip. He is one of the best known masters of lake vessels. At the time the government's shipbuilding program was started, Captain England's services were enlisted by Henry Penton, who had just been made manager of the new lake district. Captain England joined the government forces on Aug. 22, 1917, serving as assistant district manager up to Dec. 1, 1919, when Mr. Penton resigned. Captain England's work kept him almost constantly in direct contact with all of the yards in the lake district and he was largely instrumental in maintaining the successful relations between the government and the shipyards which permitted that district to establish its splendid war record both in the speed and quality of the vessels built. During the fall of 1917, Captain England also operated the government fleet which had been obtained by construction and purchase, handling the ships between the lakes and salt water, since an operating division had not been organized at that time. At the time he assumed the position of manager of the district, 57 ships remained to be delivered and of these 53 had been taken over by the government on July 1. Of the remaining 4, all but one is scheduled for delivery this year. The district's management is now centered in the home office at Philadelphia. His trip abroad will take him to England and France.

**F. H. MICKENS** has been appointed assistant to the vice president of the Eastern Steamship Lines, Inc., in addition to his duties as general freight agent at New York.

**W. I. NOBLE**, president of the Chamber of Shipping of the United Kingdom, and a shipowner of Newcastle, England, has been re-elected president of the Baltic and White Sea conference. Messrs. Sass, Salvsen and William Hansen have been elected vice presidents. The conference met at Copenhagen, Denmark, on June 10 and adopted resolutions favoring the league of nations, admitting sailing ship owners as members, estab-

lishing means for supplying information to the public on economic conditions, opposing legal interference in the question of hours of work on board vessels at sea, reaffirming the theory of the freedom of the seas as the leading principle of maritime nations in times of peace and declaring that legislation regarding the construction and equipment of ships should be subject to international agreement. Declarations were also adopted stating that shipping must be left to



CAPT. R. W. ENGLAND

private enterprise and opposing the tendency to subsidize ships sailing in international trade.

**J. F. M. STEWART**, Toronto, Ont., a director of the Halifax Shipyards, Ltd., Halifax, N. S., has been elected a director of the Dominion Steel Corp. **EDMUND BRISTOL**, Toronto, a director of the Canadian Steamship Lines, Inc., has also been elected to the board of the Dominion company. Officers of the steel company have favored the merging with the newly organized British Empire Steel Corp., which is to include a large number of Canadian steel mills and shipyards. A number of representative English and Canadian marine men are being named to the boards of the various subsidiary companies including Stanley

Elkin, president of the Maritime Nail Co., St. John, N. B.; Viscount Furness, London; J. W. Norcross and Roy M. Wolvin of the Canadian Steamship Lines; Col. Grant W. Morden, Sir William Beardmore and Sir A. Trevor Dawson.

**H. K. LAIDLAW** has been placed in charge of the office of the Pacific Steamship Co. at Dairen, Manchuria. The firm expects to participate in the oil movement out of Dairen and has just opened offices in that port. Mr. Laidlaw heretofore has been the company's agent at Yokohama, Japan.

**GEORGE R. PUTNAM**, commissioner of lighthouses, is touring the Pacific coast, visiting the important shipping centers and inspecting the various lighthouse stations. Commissioner Putnam will also visit Alaskan waters.

**F. N. BUSH** has been appointed foreign freight agent at Portland, Oreg., for the Pacific Steamship Co., succeeding R. W. BRUCE, who has been transferred to the company's Shanghai, China, office. Mr. Bruce succeeds W. B. SMITH at Shanghai, the latter having been promoted to the Singapore, Straits Settlements, office.

**J. S. FORD** will have supervision over both the Seattle and the recently established Portland, Oreg., offices of Norton, Lilly & Co., agents for the Isthmian Line and the Societe Generale de Transports Maritimes a Vapeur. Increasing business out of Portland resulted in the opening of a branch office in the Oregon metropolis.

**WILLIAM G. TAIT**, Seattle, has been appointed foreign traffic agent of the Portland, Oreg., traffic bureau with headquarters at Kobe, Japan.

**CAPT. S. HIRASE** from Tokio was a visitor in Boston recently, representing Japanese interests. He made a thorough investigation of port facilities.

**LIEUT.-COM. MORTON E. L. DEYO** of the U. S. S. MORRIS has been ordered to the Charlestown navy yard, Charlestown, Mass., as aide to Rear Admiral Samuel S. Robison.

# Activities in the Marine Field

Latest News From Ships and Shipyards

## Lake Trade Shows Improvement

BY H. C. MEADE

**L**AKE iron ore traffic conditions improved slightly toward the end of June. The line-up of ore carriers at Lake Erie docks is being cut down. Within a few days, the ore docks gained on the waiting fleet, reducing the list from 103 to 60 carriers, despite the fact that a double holiday intervened. Ore is being docked at a number of ports in order to get the boats out. Fogs at the Soo held the fleet up somewhat during the month, but the delays were of little consequence because of the jam at the other end of the route. A number of boats lost a trip in June due to the time spent at the receiving ports. The car supply is still far short of requirements and, in addition, many of the cars that are coming up to the lake front are in bad shape and cannot take ore. A little improvement in the coal movement was shown in the last week or two of the month, but receipts for June were considerably less than those for the same time last year. Docks at Duluth and Superior handled 992,000 tons of bituminous coal compared with 3,154,100 tons in June, 1919, and 392,070 tons of anthracite against 403,400 tons loaded then. The ore movement exceeded expectations, being 9,233,556 tons, an increase of 1,242,827 over June, 1919, but was 688,294 tons less than those of June 1918. Collisions and strandings of vessels have been numerous, but none has necessitated large repair jobs. The international joint commission appointed by the governments of the United States and Canada in connection with the St. Lawrence deep waterway project will hold public hearings in New York, beginning Oct. 15.

The tug A. W. LUEBKE has been purchased from Sturgeon Bay parties by the Post Fish Co., Sandusky, O. She will be operated between Sandusky and Leamington, Ont.

The state of New York has decided to build a grain elevator at the Gowanus terminal in the near future. The elevator will have a storage capacity of 2,000,000 bushels and will be equipped with unloading devices that will transfer grain from canal barges on one side of the pier to cargo ships on the other.

The steamer L. M. BOWERS was launched at the Lorain yard of the American Shipbuilding Co. on June 18. She was the most complete boat ever launched there, all her cabins and interior finishing being completed except the installation of machinery. The steamer is the first of the four freighters

being built on the American Shipbuilding Co.'s own account. The vessel is 600 feet long, 60 feet beam and 32 feet deep, and has a capacity of 15,000 tons. She was named for L. M. Bowers, one of the directors of the company.

The following changes have been made in the names of some of the lake vessels:

Old name.	New name.
HADDINGTON	MAPLEHILL
WYOMING	MAPLEGLLEN
BICKERDIKE	MAPLEBROOK
PAWNEE	MAPLEGULF
NIPIGON	MAPLEGRANGE
OMAHA	MAPLEGROVE
SEQUIN	MAPLEBORO
TOILER	MAPLEHEATH
IONIC	MAPLEBRANCH
CADILLAC	MAPLEHURST
FAIRFAX	MAPLEGORGE
VIKING	CLINTON

Capt. Harry G. Harbottle of the steamer D. G. KERR, owned by the Pittsburgh Steamship Co., Cleveland, died in Cleveland on July 1, aged 48 years. He was taken sick at Port Huron and was brought to Cleveland on the KERR. Heart trouble caused his death. Captain Harbottle had been with the Pittsburgh Steamship Co. since 1900, beginning as mate of the steamer SAXON. He was master of the KERR since 1918.

Bids for the floating and delivery of the steamer D. R. HANNA, which was sunk in a collision off Alpena, Mich., in the fall of 1919, are being solicited by the underwriters. Bids are also asked for purchase of the vessel as she now lies.

The Pittsburgh Steamship Co. has made the following changes in the lineup of the masters of its vessels:

CAPTAIN	FORMER COMMAND	PRESENT COMMAND
W. P. McElroy	W. J. OLCOTT	D. G. KERR
George Randolph	THOMAS F. COLE	W. J. OLCOTT
W. E. Stover	H. C. FRICK	THOMAS F. COLE
Frank Salee	O. M. POE	H. C. FRICK
J. A. Smith	R. W. E. BUNSEN	O. M. POE
A. T. Patchett	M. SHIRAS	R. W. E. BUNSEN
C. E. Peters	CORALLIA	M. SHIRAS
John Rourke	JOHN ERICSSON	CORALLIA
W. F. Meister	SAMUEL MATHER	JOHN ERICSSON
E. K. Male	F. E. HOUSE	SAMUEL MATHER

M. A. Hanna & Co. have leased the plant of the Buffalo Union Furnace Co. for a period of years with an option of buying. The Hanna company has been connected with the Buffalo firm since it was organized.

The steamer A. M. BYERS went ashore at Mission Point recently and had to

lighter part of her cargo. She was only slightly damaged.

Operators of blast furnaces and manufacturers of iron and steel products along the lake front have filed a complaint with the interstate commerce commission against increasing iron ore rates from the mines to lake ports. They maintain that an increase, imposed as a war measure in 1918, should first be removed to restore the old relationship of rates.

The steamer WESEE, formerly owned by the Paisley Steamship Co., Cleveland, has been sold to Canadian interests. She will be operated in the coal trade between Ohio ports and lower river points.

Machinery belonging to the old sand steamer ISABELLE BOYCE, which was wrecked off Middle Bass island, Lake Erie, a number of years ago, has been purchased by the Sun Mfg. Co., Buffalo.

The composite steamer LIVINGSTONE will be operated in the automobile trade between Lake Erie and upper lake ports this season.

Side tanks taken from the freighter CHARLES R. VAN HISE, renamed A. E. R. SCHNEIDER, are being rebuilt by the Buffalo Marine Construction Corp., Buffalo, and will be used by the Midland Shipbuilding Co. as pontoons for wrecking purposes.

The steamer E. W. OGLEBAY which grounded at St. Helena island recently was badly damaged and put into Cleveland for repairs.

The steamers F. R. HAZARD and B. LYMAN SMITH were badly damaged recently in a collision above Whitefish

Point, Lake Superior. The HAZARD made water rapidly and was beached. She put into Cleveland with 10 damaged plates needing repairs. The bow of the SMITH was badly stove in. She was placed in drydock at Superior, Wis., for repairs.

Contract has been awarded the Central Dredge & Dock Co., Cleveland, for ex-



tending the Cedar Point jetty and constructing a crib for a lighthouse and fog horn.

\* \* \*

The excursion steamer ROTARIAN, shown in the accompanying illustration, was formerly the A. WEHRLE JR. She was purchased by the Clow & Nicholson Transportation Co., Duluth, last fall and remodeled and rebuilt in the yard of the Marine Iron & Shipbuilding Co., Duluth. Work was completed early in June. The ROTARIAN is 155 feet overall, 45 feet beam over guards, with 9-foot depth of hold. She is equipped with steam steering gear, steam capstan, two independent lighting plants and trim tanks. She can now carry 1200 passengers. Her new accommodations also include a large dancing space on the main deck aft.



REBUILT EXCURSION STEAMER IN SERVICE AT DULUTH

## Along the Atlantic and Gulf Coasts

THE passenger and cargo steamer NICARAO, second of a fleet of five being constructed for the Cuyamel Fruit Co., New Orleans, was launched at the Shooters island yard of the Standard Shipbuilding Corp., New York, June 26. NICARAO is 235 feet long, 34-foot beam and 16-foot draft, with a speed of 11 knots. She will be used in service between New Orleans and Latin-American ports. It will be at least the first of August before any of the new vessels of the fleet will be received at New Orleans, according to officials of the Cuyamel company.

\* \* \*

The new public coal tipple, being erected on the upper river by the board of commissioners of the port of New Orleans, will be completed and ready for service about Aug. 15, according to announcement by the board under date of July 1. The cost of this tipple, which is for handling cargo coal exclusively, is \$610,000. It is of the belt conveyor type, handling coal from freight cars to a 30,000-ton storage pile. From storage, 7400 feet of 36-inch belt conveyor take the coal to the loading towers at the end of the wharf, whence it can be delivered direct, at the rate of 600 tons an hour, to the hold of a vessel. Facilities also are provided for the receipt of coal by barge on the river, and for handling the coal direct from cars or barges into ships, without passing it through the storage pile.

\* \* \*

The majority of the railroads serving New Orleans have decided to absorb the 15 cents a ton tollage put on all freight passing across the wharves by the dock board. Considerable protest was made at first by the railroads, but gradually they undertook the absorption of the charge, realizing that increased costs made it necessary for the port facilities to receive more pay for their services.

\* \* \*

A new channel is being constructed in the Red River, at Goldpoint, a few miles above Shreveport, La., cutting off six miles of the length of the river, protecting the levees and railroad prop-

erty at Shreveport and increasing the navigability of the stream. The improvement is being done by Caddo parish, at a cost of \$60,000.

\* \* \*

Six all-steel ships, 6000 tons each, now on the ways of the Chickasaw Shipbuilding Co., Mobile, Ala., will be named for as many cities of Alabama. They are to be called TUSCALOOSA CITY, MONTGOMERY CITY, BESSEMER CITY, FAIRFIELD CITY, SELMA CITY and ANNISTON CITY.

\* \* \*

The 5000-ton steel steamer HOUSTON was launched June 26 by the Mobile Shipbuilding Co., at Mobile, Ala. Steel steamer CITY OF ATLANTA was launched by the same company July 3, at the same place.

\* \* \*

The United Fruit Co. announces regular service every three weeks by steamer between New Orleans and Port Limon, Costa Rica, starting about the middle of July.

\* \* \*

L. J. Folsie, for many years connected with the exporting firm of A. E. Hegewisch & Co., New Orleans, has formed the Marine Forwarding & Shipping Co., with offices at 313 Whitney Bank building, New Orleans.

\* \* \*

The Dollar Steamship Co., Boston, will establish a steamship service between Boston and the Far East. The steamers will go to Japanese and possibly Chinese ports by way of the Panama canal. The North Atlantic & Western Steamship Co. will be the Boston representative of the line.

\* \* \*

The open shop now prevails successfully in all the shipyards and ship repair plants in New Orleans, the metal workers' union having brought about the change by its recent action in calling out 7000 men, at a time when the yards were overburdened with work. New men, all nonunion workers, have been trained and every yard and repair plant in the port is working as efficiently as ever, while the metal workers are now asking, by means of advertising in the newspapers,

to be taken back on any terms the employers wish to give. The Jahncke drydock and ship repair plant recently handled its largest vessel, the JOHN ADAMS, 12,000 tons, belonging to the shipping board and operated by Lykes Bros. successfully and speedily with nonunion men, repairing her and sending her on her way to Alexandria, Egypt, laden with 12,000 tons of coal.

\* \* \*

The Brazilian schooner, THOMAS F. POLLARD, was recently purchased by Capt. O. A. Gilbert, Boston, who secured a special permit from the treasury department to allow the vessel to make the passage from Bermuda to Boston under the Brazilian flag, pending her transfer to American registry. The vessel will be placed in the coastwise trade.

\* \* \*

The Massachusetts commission on foreign and domestic commerce, in accord with the joint commission of the other New England states, has extended to the National Foreign Trade council, an invitation to hold in Boston the coming year the eighth national foreign trade conference. Every state in New England is engaged in overseas trading and will benefit from the conference.

\* \* \*

The destroyer Brooks, the largest in the United States navy, and the first of 20 of a like type to reach the trial stage, successfully completed her standardization trials at Rockland, Me. The Brooks developed a maximum of 31,551 horsepower, the contract having called for a requirement of 27,070 horsepower. The average speed was 34.57 knots. The maximum speed reached was 34.85 knots. The fuel test included a 30-knot speed for four hours.

\* \* \*

The United Fruit Co. will establish a new service between Boston and the canal zone. With this service in operation New England exporters can route shipments through the Massachusetts port for Cristobal and other parts of Panama and for all the ports along the east coast of Colombia, the west coast ports of Mexico, Chile, Ecuador, Salva-

dor, Guatemala, Nicaragua and other Central and South American republics.

\* \* \*

The United States submarine S-29, built at the Fore River yards of the Bethlehem Shipbuilding Co., Quincy, Mass., was launched on June 10. Miss Anne Claggett Zell, Baltimore, niece of Capt. Harry W. Williams, naval constructor at the Bethlehem yards, was the sponsor.

\* \* \*

The S-19 was launched on June 20 at the Fore River plant of the Bethle-

hem Shipbuilding Co., Quincy, Mass. Miss Genevieve Kittinger, daughter of Commander T. A. Kittinger, inspector of ordnance, U. S. N., was the sponsor.

\* \* \*

The Louisiana state legislature has passed the bills authorizing the New Orleans board of port commissioners to issue \$6,500,000 worth of bonds, and also enabling the reorganization of the dock board, taking it entirely out of politics by giving it five members, named for two, three, four, five and six-year terms. All departments of the board will be

thoroughly reorganized. The board is also authorized to build commodity warehouses for public use at certain points. This elicited a bitter fight on the part of the private warehousemen of New Orleans, but they were defeated before committees of both houses of the legislature.

\* \* \*

A new passenger service has recently opened between Boston and Liverpool, with the Furness liner FORT VICTORIA. She has accommodations for 400 first cabin passengers and is 415 feet long with a capacity for 3000 tons of cargo.

## Activities Along the Pacific Coast

THE East Waterway Dock & Warehouse Co., one of the finest terminals in Seattle, has been acquired by the Spreckles interests of San Francisco and will continue as the storage site for much of the vegetable oil passing through Seattle from the Orient. This terminal was built by Rogers, Brown & Co., now in financial difficulties. A reorganization was recently effected whereby the terminal changed hands. The new owners have purchased for about \$800,000, a 25-acre tract on which the dock and warehouse are located.

\* \* \*

Much interest is taken in the report of the special committee delegated by John Barton Payne, secretary of the interior, to investigate the Alaskan transportation question and make recommendations. This committee has urged the consolidation of all steamship lines running to the north to avoid competition and to improve service. While no definite plans have yet been worked out, representatives of both of the steamship lines operating to the north, are said to be willing to assist in improving transportation to Alaska but it is pointed out that foreign competition must first be eliminated.

\* \* \*

Burning both oil and coal, the shipping board steamship WEST IVIS is steaming for the Orient and wireless messages indicate that the experiment is working successfully. Some doubt was felt as to the feasibility of the plan but permission was given to equip one boiler for coal and the other two for oil. Heretofore, it was considered out of the question to use both kinds of fuel at the same time. From reports received from the WEST IVIS it is expected that by burning both coal and oil together, much of the difficulty encountered in supplying vessels with fuel on the transpacific route will be obviated.

\* \* \*

Marking a new epoch in north Pacific shipping, the shipping board steamship PALLAS has inaugurated direct steamship service to the River Plate and other ports on the east coast of South America. The PALLAS left Seattle with 3,000,000 feet of lumber and a consignment of canned salmon. The second sailing will be the ROTARIAN during July. These vessels are prod-

ucts of the Todd yards, Tacoma, Wash., and are said to be excellently suited for the trade.

\* \* \*

Reports from the Orient indicate that the fuel situation has been relieved by the completion of shipping board fuel oil tanks at Manila and Shanghai. For some time it has been customary to send shipping board vessels from this side with oil and then in the Orient to convert them to coal burners. Several liners were sent to Honolulu for oil but the shortage in the island port has been acute and considerable delay resulted.

\* \* \*

Twenty-five carloads of wooden paving blocks consigned to the Philippine government for use in making roads in the islands have been shipped from Seattle on the shipping board steamship WEST IVIS. The blocks are treated with creosote by a special process to preserve them in the tropical climate. Fifty additional carloads are to move on other ships.

\* \* \*

Plans of the Isthmian line contemplate a fortnightly service between New York, San Francisco, Portland, Oreg., and Seattle. This will supply a coastal service which has been greatly missed since the American-Hawaiian line withdrew because of conditions due to the war. Seven 11,000-ton steel steamers have been assigned to the coast-to-coast route. Steel and miscellaneous cargo will be brought from the Atlantic while lumber, salmon and flour will form the principal exports from Pacific ports.

\* \* \*

Nearly 10,000 Czecho-Slovak troops have passed through British Columbia ports during the last month enroute home after long military service in Siberia. The officers and men were brought from Vladivostok on the steamships IXION, PROTÉSILAIUS and M. S. DOLLAR.

\* \* \*

The first collision between hydroairplane and steamer to occur on the Pacific coast took place recently on Lake Washington, Seattle, when an air machine traveling 40 miles an hour crashed into the little passenger steamer DAWN. The plane was completely wrecked and considerable damage was done to the DAWN. The two occupants of the plane escaped uninjured. As a result of the mishap, the owner of the DAWN has

requested the United States inspectors to extend the rules of that service to hydroairplanes.

\* \* \*

Material for the 504-foot span of the great steel bridge being built across the Susitna river on the Alaskan railroad is moving to Anchorage, Alaska, on several steamers among which the 1700 tons of steel have been apportioned. The span was built at Gary, Ind., and is said to be the second largest ever undertaken by that plant.

\* \* \*

Preparations are under way for blowing up and burning the wreck of the wooden schooner JANET CARRUTHERS which was lost at Grays Harbor, Wash., early last year. The machinery and equipment of the vessel were salvaged but it was impossible to get the hull off the beach. The hull is to be burned to obtain the metal fittings.

\* \* \*

Fire of unknown origin swept the upper works of the palatial Japanese liner SUWA MARU, of the Nippon Yusen Kaisha line, while the vessel was discharging at Seattle. The first class staterooms and dining saloon were destroyed. Temporary repairs were effected and the SUWA MARU departed for the Orient on schedule time.

\* \* \*

After being loaded with a lumber cargo for India and lying idle at Seattle for six months, the wooden motorship KIRKETIND has been discharged. Financial difficulties prevented the vessel's putting to sea. The delay resulted in several heavy libels being placed against ship and cargo and the discharge of the lumber is the first step toward settling the case. Attorneys for all interests have agreed to the sale of the vessel, the money thus obtained to be distributed by the court.

\* \* \*

In competition with firms all over the country, Doran Bros., Seattle, have been awarded a contract for furnishing 60 manganese bronze propellers for installation on vessels under construction at Hog Island, Pa. The order means an expenditure of more than \$500,000. In the construction of the 60 hubs, 480,000 pounds of iron and 140,000 pounds of steel will be used. Each wheel will have a spare blade and in the 300 blades 1,400,000 pounds of manganese bronze will be needed.

# Practical Ideas for the Engineer

## What is Learned in Study of Handling Methods at British Ports—Ratchet Wrench—Landing Pole

**W**HILE Liverpool is not as old a port as London, the growth of the city has restricted dock space, and it has not been able to expand as freely as has the port of London. The greater part of the dock system is comparatively old. In general it may be stated that the typical sheds are two stories high, with hydraulically operated cranes upon the roof. Liverpool has also been handicapped in the matter of railroad connections, and there is much trucking through the city. The most modern installation is the Gladstone dock, which can be used, when required, as a drydock. At the time of inspection, the *AQUITANIA* was taking on 6000 tons of coal and it was said four days would be required. Lighters were placed on both sides of the ship, and the bunkering was being performed by hand. The coal was shoveled into baskets, which were hoisted by a single whip to the side ports of the ship. It may be stated that in fact bunkering at ports of England is usually done in this manner, although some few mechanically equipped barges have been built. Several of these are said to have a capacity of 1000 tons, with chain belt elevators running the entire length of the barge. At the new Gladstone dock, are four electric gantry cranes, with 60-foot booms, the front leg of the crane resting on the track at the edge of the quay, and the back leg on the eaves of the building. At Langton dock is a 100-ton fixed base, revolving crane.

### How a Jigger Works

Both at Liverpool and Manchester an interesting installation was observed, called locally a "jigger", with which single bags of material were lowered from the upper stories to waiting trucks below. The apparatus consisted of a single pulley and a brake. The bag was fastened to one end of the line and lowered until it almost reached the truck below. The other end of the line was attached to another bag, and when the brake was released the jerk of the falling bag lifted the other bag so that it could be pushed off the edge of the sill, when it in turn was stopped by the brake just before it landed, when the

operation just described was repeated.

At Manchester most of the cranes travel on standard gage tracks, but have a wider reach of base, which is stabilized by means of screw jacks.

Some interesting examples of mechanical handling are to be seen at the Trafford Park estates. This is a private enterprise on the edge of the Manchester ship canal. It specializes in sites for works, and in warehousing. Many prominent concerns are located upon these estates, notably, the British Westinghouse Co., Guinness Son & Co. and the Ford Motor Co. The warehouses are quite different from the transit sheds along the docks. The main ones are locally called "safes." They are 45 feet high, 36 feet wide and 165 feet long, and are equipped at the extreme top with traveling cranes extending the entire width. The trolleys with which these cranes are equipped travel on one rail, and are thus enabled, by means of a small turntable, to transfer to tracks at right angles to the axis of the storehouse, and to deliver goods along the entire face of the warehouses, or over the waterfront at the end, or to transfer material from one safe to another. At the time of our visit, considerable quantities of Egyptian cotton were stored in some of the safes. This was stored 15 bales deep, these bales weighing from 750 to 800 pounds each. The manager of the estates based his design for these safes upon the cotton warehouses of New Orleans. Also, he had installed a considerable amount of handling machinery in the shape of chain belt conveyors and stackers in others of his storehouses. In one of these houses, belt conveyors with portable sections are being used end on for the entire length of the building and feed bags of sugar to a stacker. All this material is said to be of American manufacture.

At Birkenhead docks, Liverpool, a traveling crane is used which has an extension track upon which a trolley with a jib could be run out over a vessel, the jib enabling the crane to handle material flexibly over a good sized area.

At Hull, while there are not many transit sheds, in some cases the arrangement and equipment are excellent. One set of sheds has two lines of track front and rear, besides the

gantry crane track and belt conveyors in a subway for grain. One basin has 12 cranes on each side, or a crane for each 100 feet of length. Some of the 2-story transit sheds have cranes running on the roof at the rear, the roof being designed of sufficient strength to receive heavy freight. The gantry cranes in front handle material from ships to roof, and the roof cranes pick this material up, and serve it into the cars at the rear of the building.

### How Coal Is Handled

At Immingham, which is essentially a coal port, they have sidings for 170,000 tons of coal stored in cars, with capacity for 5500 empty cars in addition. The mineral quay at Immingham has cranes with a reach of 75 feet, serving four standard gage railroad tracks. There are 10 of these cranes, ranging in capacity from 3 to 5 tons. At the Royal dock, cranes are alternately of 3 and 5 tons capacity. Also at Immingham, as at some other ports, small jib cranes were observed on the dock, and inside the buildings. They are equipped with ordinary wheels, so that they can run anywhere. A chain belt bucket installation is also used, feeding high level belts which carry grain to a neighboring granary. A 50-ton crane at one of these basins for fitting out is also available for handling coal.

Avonmouth has a 2-story concrete transit shed with a flat roof for heavy weights. Two lines of rails are provided, front and rear, both under cover. Six 1½-ton electric cranes have sufficient reach to plumb the hold of a vessel, with lighters between it and the quay, and to transfer the load to the roof, or into the transit shed building. The floor of this building slopes from quay level in front to height of car floors at the back. Another shed at Avonmouth has four lines of trolley rails supporting 1-ton differential block trolleys. Seven lines of railway run in front of this shed, and it is explained that this is necessary on account of the classification of mixed cargo direct to cars, this cargo coming from Australian ports. Here also, portable grain elevators of the chain belt bucket type were observed suspended from ships' booms.

At many of the English docks small hydraulically operated capstans are

Concluding installment of a paper presented at a meeting of the Material Handling Machinery Manufacturers' association. The author, F. T. Chambers, is captain, C. E. C., United States navy.

placed between the tracks on the waterfront, and used for shifting cars, thus doing away with shifting locomotives.

The Alexandra dock, Cardiff, has 16 electrically operated, 2-ton gantry cranes, and 12 more of these cranes are projected. Four lines of track are provided on the quay side, and two at the rear. Cardiff is essentially a coal port, and on one quay of the Alexandra dock eight hydraulically operated elevators are provided, each capable of lifting an entire carload of coal, and dumping it into a chute. These eight elevators are each equipped with a jib boom, which holds a bucket under the chute of the elevator, thus easing the fall of the coal and preventing breakage. Eight jib cranes are installed on this same quay, which lift individual cars and dump them

are bunkered as they pass down the canal, the appliances used being similar to those described for Cardiff for cargo coal handling.

Great expedition in turning ships around in the British ports was not uncovered, the average time per ship in port having been stated on several occasions as 14 days, both during and before the war. The fact is that, with a few exceptions, mechanical handling ceases with the cranes on the waterfront, and that hand trucks do practically all of the transfer work between cranes and railway. American port engineers can learn a great deal from a study of the British quay system in comparison with the American pier system. Given an area of undeveloped waterfront, underlaid by fairly good foundation material, a better layout can be made on the quay

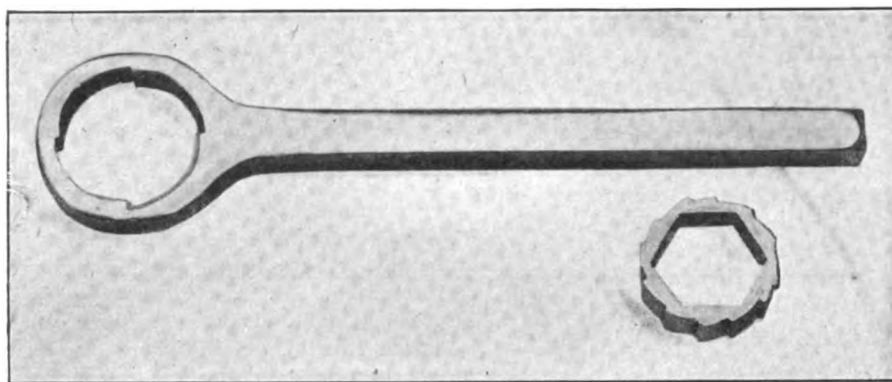
tons per hatch hour, and that they have kept up a rate of 55 tons per hatch hour for an entire day at a time, the New York record is a sorry one.

The steamer which was analyzed had various mishaps and delays due to loading coal without proper trim, lack of steam, waiting for lights, broken winch, shifting lines, etc. But she spent 15 days in port, and although she took on bunkers from lighters alongside, she stayed almost two full days at the wharf completing her bunkering after all cargo had been handled. Her average daily expenses, inclusive of overhead, were \$3938.59. We prepared a table to show how much would have been saved for each day less that the ship might have remained in port, and carried this down to a total stay in port of six days, which we thought to be a reasonable time. If she had only saved one day she would have saved \$3938.59, but if she had saved nine days, the financial saving would have been \$35,447.31. Putting it another way, she would have been 2376 miles on her way to the next port.

A prominent shipping man when shown this record, stated that he had been in the habit of looking at the problem in a somewhat different light—that a ship such as we had described should make a net profit at the present time of about \$2000 per diem. Now, we all know that under present shipping laws American ship operators are obliged to spend more money for the operation of a ship at sea than their foreign competitors. It seems certain to me that we are not going to design ships which cost less in propulsive power than the British, who have been at it so many years. Bearing in mind the large savings shown above, we certainly can afford to spend large sums upon terminals if thereby the port turnaround can be reduced.

### Ratchet Wrench

A new marine wrench, invented by Charles H. Potter, a millwright in the employ of the Morse Dry Dock & Repair Co., Brooklyn, N. Y., is shown in the accompanying illustration. This invention is designed for mechanics engaged in shipbuilding and repairs. In ship's engine rooms and in other comparatively cramped quarters, this wrench is of use because it can be effectively manipulated by short turns. Acting both as a ratchet and wrench, it can be used on various sized nuts and on hexagon as well as square nuts. It will not slip.



WRENCH FOR USE IN CRAMPED QUARTERS

into the hold of a vessel. These two methods of handling coal are more or less common to all of the coal ports. It should be borne in mind that the usual capacity of British cars is 10 tons, with an occasional 20-ton car. The capacity per hour by either method seldom exceeds 300 tons.

At Newcastle elevators capable of raising entire carloads of coal and dumping into a hopper are used. The towers of these elevators were not so high as some others noted, and the proper elevation of discharge of the coal was obtained by means of electrically operated belts upon a swinging arm, capable of adjustment for various heights of vessels.

In all of the English ports, cargo is handled almost exclusively by hand trucks. Aside from the crane equipment on the waterfront, the better capacity of the transit sheds, and free access to the railways, American ports have little to learn from the English ports in the matter of handling methods.

While the bunkering of ships is largely performed by hand in most of the English ports, Manchester is an exception to this rule. Here ships

principle than on the pier principle.

Missionary work should be done among the influential people of America's busiest ports in order that they may fully understand the economies to be effected by means of terminals properly designed, with adequate mechanical handling appliances. Some time ago our commission set out to prove this argument by means of the analysis of the actual charges against a ship in New York harbor. We found it difficult to secure complete data for any one ship, and so had to do the best we could. The first ship's record which came to our hands was that of a coal burning vessel of 6450 tons deadweight, which came into New York with some 2700 tons of miscellaneous cargo from Genoa, Italy, and went out with about 3800 tons of miscellaneous supplies for Archangel, Russia. I hope that the record of this ship is not typical, as the average rate of discharge of cargo was 4.75 tons per hatch hour, and the average rate of loading was  $5\frac{1}{2}$  tons per hatch hour.

Inasmuch, as we have information that sugar bags are unloaded in San Francisco harbor at the rate of 60



## To Land Men on Dock

A landing pole designed by the chief engineer, J. Brand, of the Great Lakes bulk freighter AUGUSTUS B. WOLVIN, is illustrated in the accompanying drawing. As pointed out in *The Bulletin* of the Lake Carriers' association, the WOLVIN's ship safety committee believes the installation to be unequaled in point of safely landing men on the dock and at the same time eliminating striking the dock with the steamer's bow.

The industrial committee of the Lake Carriers' association has recommended that landing poles be installed on all ships after being subjected to a test of 800 pounds. The WOLVIN installation, as worked out by Mr Brand and Capt. John Tower, master, is designed to hoist weights up to 1200 pounds from boats alongside or out of the cargo hold through No. 1 hatch. The pole illustrated, or more properly the derrick, is, of course, much heavier than would be required simply to land a man on a dock. The committee of shore captains after examining the details of the landing pole recommended the use of an additional block to give greater purchase and insure added safety. The lower block shown is the one added on recommendation of the committee.

## How Sounding Tubes Are Used

Physical laws underlying the scale of a sounding tube are discussed in a paper recently issued by the United States coast and geodetic survey. The author is Walter D. Lambert, geodetic computer.

The use of the sounding tube or depth recorder has long been recognized as a convenient and rapid method for getting approximate soundings in depths of 100 fathoms or less. It has never been an instrument for accurate surveying and, indeed, the depths shown by two tubes of different patterns, thrown overboard at the same point, or even by two tubes of the same pattern, have often exhibited surprising discrepancies. The larger discrepancies must be due to some accident in the working of the apparatus, but the smaller ones may be due to the different assumptions made in laying off the scale of depths used. Moreover, it does not appear that the method of graduating the tubes now on the market has ever been published in detail.

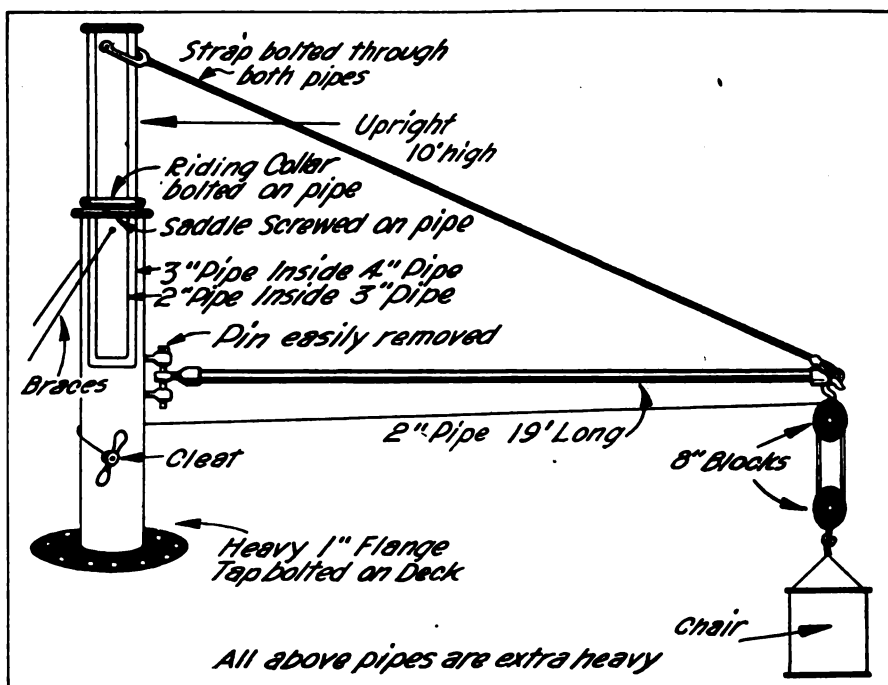
It is the purpose of this paper: (1) to provide, with the information at hand, as correct a scale as possible for the tubes of the new coast and geodetic survey pattern; (2) to give

a method for correcting the depths read directly from the scale for variation in temperature and in atmospheric pressure; (3) to provide a compilation of physical data likely to prove convenient in a further study of the subject.

An approximate formula is first derived and corrections are given for the departure of the air from a perfect gas and for the vapor pressure and the compressibility of water; the final formula is put in a convenient form for computing tables from it. The amount of compressed air dissolved in the water of the tube is considered in the light of the data available and of the mathematical

tioned simpler formula) for correcting the readings for variation of temperature and pressure and a table showing the difference between a scale computed on the assumption of no absorption of air by the water in the tube and a scale computed on the assumption of absorption of air up to the saturation point. The use of some of the tables is illustrated by numerical examples.

More than 225,000,000 tons of shipping, steam and sail, harbor, coastwise and deep water, have been drydocked in the big repair yards owned by the Todd Shipyards Corp., in New York harbor and on the Pacific coast. This



DERRICK TYPE OF LANDING POLE INSTALLED ON STEAMER A. B. WOLVIN

theory of absorption. Simple approximations are given for correcting the readings for deviation from the assumed normal temperatures and pressure; more accurate correction formulas are also deduced and compared with the simpler ones, which are shown to be sufficiently accurate unless extreme precision is demanded. Other minor corrections are also considered.

The tables at the end contain a compilation of data on the physical properties of air and sea water. Special tables are included for the density, vapor pressure and compressibility of sea water and of the absorption of atmospheric gases by it, a table of water pressures at various depths, a general table for the scale of a sounding tube, a special table for tubes of the coast and geodetic survey type, a table (computed according to the above men-

total is more than four times the merchant tonnage of the world at the end of 1919. These 225,000,000 tons, representing vessels of every size and type, have been handled by the 19 floating docks and the two graving docks that are distributed among the various Todd yards.

Four shipping board steamers—the EASTERN TEMPEST, EASTERN GLADE, WEST TOGUS and OTHO, have been assigned by the shipping board to clean up the 1919 grain crop at Portland, Oreg., and on Puget sound, according to announcement made by the division of operations.

Iceland has 155 registered vessels aggregating 17,944 tons. The largest craft of this northern island is the steamship GULLFLOSS of 1414 tons. This craft has docked at New York several times during the last few years.

# Equipment Used Afloat, Ashore

## Cast Steel Anchor—Plate Bending Rolls

**A**N ANCHOR recently furnished the Standard Oil Co. by the Admiral Anchor Co., Philadelphia, is shown in the accompanying illustration. This anchor is part of the equipment of the steamer TACOMA. Its total weight is 9405 pounds distributed as follows:

	Pounds
Head .....	3700
Shank .....	3510
Rings .....	20
Key .....	10
Balls, two .....	300
Stock .....	1465
Shackle .....	250
Shackle pin .....	60
Back pin .....	90

By comparing these weights with the illustration, an excellent idea of the size of this unit is obtained. A number of these anchors have been made.

### Plate Bending Rolls

The bending rolls shown in the accompanying illustration recently were built by the Kling Bros. Engineering works, Chicago, for Joseph T. Ryerson & Son, Chicago. This unit is equipped throughout with steel gears having machined teeth. This feature, it is pointed out, insures smooth running at a maximum power consumption. All journals are provided with bronze bushings. The unit is 34 feet 2 inches between housings and will bend plates up to and including  $\frac{3}{4}$  inches. The upper roll is 29 inches in diameter and weighs 40 tons. The two bottom rolls are 21 inches in diameter and are equipped with roller supports, as the illustration shows. The rolls are mount-



CAST STEEL ANCHOR WEIGHING 9405 POUNDS

ed on a cast iron sub-base and are provided with independent motors for the main drive and for adjustment of the upper roll.

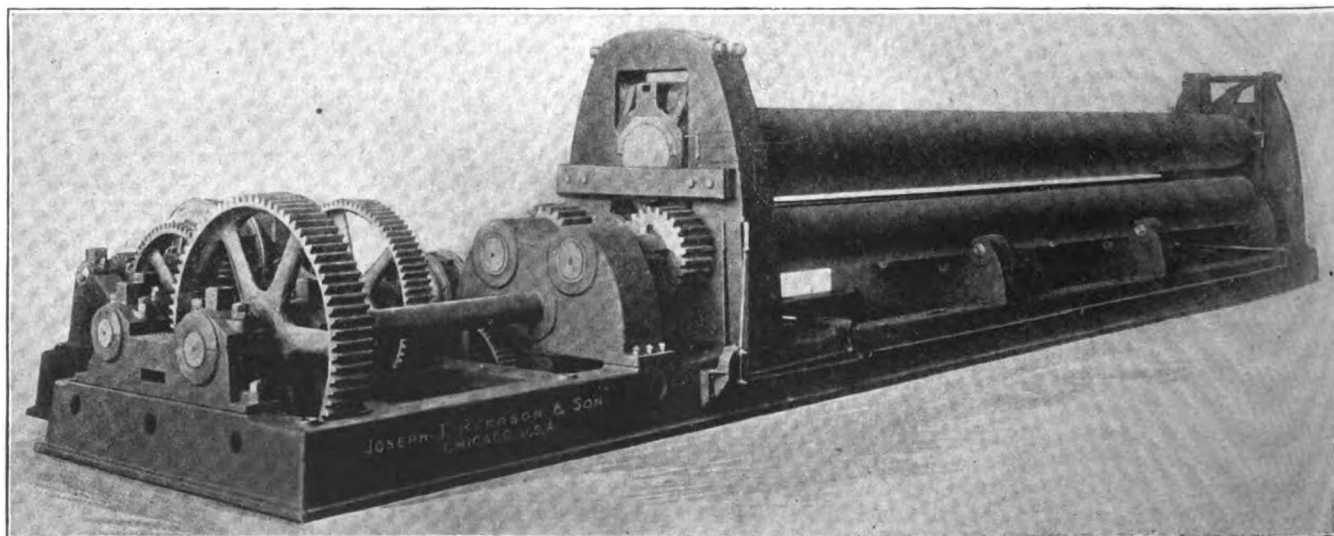
### Pull Ship Off Sand

A unique salvaging feat has been performed by the Atlantic Salvage Co. which has succeeded in floating the Greek steamer PLATEA, the first vessel to be salvaged of some 200 ships which have been caught in the sands of Sable

island. The vessel has arrived at Halifax, N. S., to be drydocked for overhauling.

The PLATEA went ashore on Sable island last November, in one of the heavy gales of that month, while en-route from Greece. Efforts were made to float her at that time, but these proved unsuccessful. At the beginning of the year, the Atlantic Salvage Co. accepted the contract of salvaging the steamer on the "no cure, no pay" principle. In January, the floating of the LAKE ELMDALE and the JOAZEIRO, having made it necessary for its own steamer, the LA CANADIENNE to lay up for repairs, another steamer was chartered and fitted out. She was afterward found to be unfitted for the work, however, and the task fell to the repaired LA CANADIENNE. The steamer sailed for Sable island, but was held up by the grounding of the ROBERT CANN, which steamer was then hauled off the rocks at Canso. The LA CANADIENNE returned to Halifax and later sailed again for Sable island, reaching there April 21 and commencing work on April 22.

The PLATEA lay 1500 feet from water sufficient to float her and was embedded in 13 feet of sand. She had two bars to cross, one with 3 feet of water over it and the other with 5 feet. She was lightened so as to draw  $10\frac{1}{2}$  feet. Extensive operations were necessary in preparation for the big attempt which was to decide the fate of the steamer. Four ground tackles were laid with 6-inch wire cables and heavy blocks and luffs. Ten 4-ton anchors were at the end of the cables,



LARGE BENDING ROLLS WITH A CAPACITY OF  $\frac{3}{4}$ -INCH PLATES—THIS UNIT IS 34 FEET 2 INCHES BETWEEN HOUSINGS

three at the ends of two of them and two at the ends of the others. After lying all winter on the shores of Sable island, it was natural that the steamer's engines would be badly in need of repairs. These were thoroughly overhauled and fitted out for operation.

All preparations having been completed, the big attempt was finally made. The steamer LA CANADIENNE stood outside with heavy cables reaching to the stranded vessel, exerting every ounce of her power; the winches worked with tremendous strength on the ground tackles and these were pulling the steamer stern first toward the sea. While these pulled, the repaired engines of the PLATEA worked her propeller and cut away the sand. Thus with one power pulling and another cutting, the workers were soon encouraged by a movement on the part of the steamer. Before the day was over she had progressed 30 feet, and every day after, more progress followed.

### Book Review

*Graphic Production Control*, by C. E. Knoepfel, cloth, 477 pages, 6 x 9; published by the Engineering Magazine Co., New York, and for sale by MARINE REVIEW, price \$10, postpaid.

The basic principle that picturization conveys more to the average intelligence than do words or figures has formed the premise upon which Mr. Knoepfel has built a practical

treatise of great value to the modern industrial world. Visualizing ideas is the theme, and the author has followed his own precepts faithfully in presenting his subject matter, both through the clearness of his writing and the free use of detailed suggestions to illustrate the points offered.

Mr. Knoepfel states that forms, figures and statistics depend for their intelligent use upon the perceptive faculty of the user. Therefore, he enhances perception and aids intelligence by picturing for his reader the essential data required in attacking industrial problems. The use of graphic charts almost to the entire exclusion of other methods of presenting figures, statistics, summaries and other essential information in handling the armies during the war is touched upon as an example of simple, efficient management. The application of this war-taught lesson to the imperative demands for more production during the reconstruction period is shown. The author then states the fundamental laws which underlie efficient management. He draws a minute outline of the analysis upon which graphic production is based. He impresses the need for efficient organization, as preliminary to graphic control and gives minutely and step by step the method for establishing the mechanism of his system.

## Rapid Unloading of U. S. Steamer

To the Editor:

We have read with interest the article on page 307 of Vol. 50, No. 6, of the MARINE REVIEW dated June, 1920, under the style of "Get Better Dispatch."

In view of this article, we desire to point out to you that lately we have had many American steamers to our address, carrying 5000 to 10,000 tons of coal, and we have been able to give good dispatch to these steamers.

As an illustration, we gave the following dispatch to the S. S. WINNEBAGO: Sunday, May 30, steamer arrived at Rotterdam at 2:10 a. m.

Sunday, May 30, steamer was cleared in.

Monday morning, May 31, was used for customhouse purposes.

Monday, May 31, steamer commenced discharging at 2:30 p. m.

Wednesday, June 2, steamer finished discharging at noon.

Wednesday, June 2, steamer commenced ballasting 650 tons of sand at 1 p. m.

Wednesday, June 2, steamer finished ballasting at 5 p. m.

Thursday, June 3, steamer sailed at 7:30 a. m.

Steamer had on board 5650 tons of coal, so that she was discharged at an average of 3000 tons per 24 hours. On behalf of her cargo, she was practically three days in port.

(Signed) H. Van Krieken & Co.,  
Rotterdam, Holland.

## Business News for the Marine Trade

It has been officially announced in the Canadian house of commons, that a drydock will be constructed at or near Victoria, B. C., to cost between \$5,000,000 and \$6,000,000. The dock will be erected by the dominion government.

The Amalgamated Scaling Co., New York, steamship repairing, has been incorporated with a capital stock of \$100,000, by J. Elligers, G. A. and F. A. Percival, 14 Butler place, Brooklyn, N. Y.

The Flint Export, Import & Shipping Corp., New York, has reduced its capital stock from \$1,500,000 to \$250,000.

Henry J. Gielow, New York, marine architect, engineer and ship broker, recently was incorporated with a capital stock of \$25,000, by T. H. Fulton, J. H. Wells and B. H. Noden, 2 Rector street.

Capitalized at \$1,000,000, the Union Shipyards Corp., recently was chartered in Delaware by Robert K. Thistle, A. Roy Myers and Raymond J. Gorman, New York.

The Borough Terminal Co., Inc., New York, shipbuilding and drydock operator, recently was incorporated by C. K. McGuire, 203 West Eighty-first street, and others.

With \$5000 active capital, the Beaver Steamship Corp., Brooklyn, N. Y., recently was incorporated by J. A. Martin, W. Shea and P. I. Dobron, 64 Wall street, New York.

H. S. Fitzgibbon & Co., Sea Cliffs, N. Y., have

been incorporated to manufacture engine packing, with a capital stock of \$300,000, by R. W. Crawford, R. N. Phinney and H. Schulbert, 120 Broadway, New York.

The harbor commission, Camden, N. J., is expected to call for bids shortly for the construction of the proposed marine terminal at the foot of Spruce street. Considerable mechanical equipment will be installed, including loading and unloading machinery, conveying apparatus, etc. The pier will be 102 x 485 feet, and the terminal proper, 86 x 485 feet. It will be built at an estimated cost of \$400,000.

The bureau of yards and docks, Washington, has taken bids for the erection of a new building at the League Island navy yard, Philadelphia, to be built at an estimated cost of \$100,000.

The National Welding Co., 17 Charles street, New Haven, Conn., recently was organized to manufacture welding equipment, by J. P. Shuford and others.

The Lake Shipbuilding Co., Buffalo, and the Buffalo Marine Construction Corp., have been merged.

The Johnson Iron Works, Ltd., which recently acquired the properties of the New Orleans Dry Dock & Shipbuilding Co., New Orleans, is now operating under the name of the Johnson Iron Works, Dry Dock & Shipbuilding Co., Inc. The amalgamation of these two companies makes one

of the largest industries of this nature in the south. The company will actively operate three plants.

The Ashbourne Steamship Corp. recently was incorporated with a capital stock of \$500,000, by C. A. Cole, Hackensack, N. J.; Robert A. Van Voorhis and Arthur R. Oakley, Pearl River, N. Y.

Capitalized at \$10,000, the Kennebec Steamship Corp. recently was chartered in Delaware by T. L. Croteau, M. A. Bruce and S. E. Dill.

Charles E. Egan & Co., New York, recently were incorporated with a capital stock of \$10,000 to prepare ships for sailing, by J. A. Walsh, T. Nivan and C. E. Egan, 283 Garfield place, New York.

Capitalized at \$100,000, the Ellsworth Ship & Coal Corp., has been incorporated in Delaware by T. L. Croteau, M. A. Bruce and S. E. Dill, Wilmington, Del.

The Gylidara Ocean Touring & Transportation Corp. recently was chartered in Delaware with a capital stock of \$100,000, by T. L. Croteau, M. A. Bruce and S. E. Dill, Wilmington, Del.

The Bethlehem Shipbuilding Corp., Bethlehem, Pa., recently increased its capital stock from \$15,500,000 to \$25,000,000.

The plant of the Manitowoc Shipbuilding Co., Manitowoc, Wis., which was originally built at a cost of \$1,500,000, has been sold to Charles C.

West, who will reorganize the concern and continue operations.

Andia & Ferrary, Brooklyn, N. Y., ship chandlery, has been incorporated with a capital stock of \$30,000, by J. A. Wilson, G. Ferrary and B. Andia, 75 Northern avenue, New York.

Capitalized at \$200,000, the McCauley Steamship Co., 404 Lewis street, Union, N. Y., recently was incorporated to operate steamships, etc.

The Fourth National Steamship Co., Weehawken, N. J., recently was chartered to operate steamships with a capital stock of \$600,000.

The American Lloyd Steamship Co. recently was incorporated with \$1,500,000 capital, by Joseph E. Casey, L. R. Strasburger, Washington, and T. Ford, Hyattsville, Md.

The Red Diamond Steamship Corp. recently was chartered in Delaware with \$1,000,000 capital, by Louis Russell, Ernest Angall and Louis C. Bergen, Wilmington, Del.

D. Costagliola & Co., New York, ship construction and dredging, recently was incorporated with a capital stock of \$500,000, by W. J. Eldredge, C. P. Schroetter and J. A. Martin, 64 Wall street, New York.

The Atlantic Adriatic Steamship Corp., New York, has been incorporated with a capital stock of \$20,000,000, by Harold V. Williams, Louis E. Krumholz and Anna L. Dunn.

A contract was recently entered into by the Downey Shipbuilding Corp. with the Mexican Petroleum Co., for building a small tank steamer for the Argentine trade, and the work is being pushed for an early start on the construction of this vessel.

The Globe Marine Composition Co., Inc., New York, recently was chartered with a capital stock of \$200,000, by L. Miller, New York, and others.

Capitalized at \$20,000, the American Turbine Repair Co., New York, recently was incorporated by H. R. Smith, W. Kontak and C. S. Cobb, 226 West 114th street, New York.

The capital stock of the Munisla Steamship Corp., New York, recently was increased from \$225,000 to \$650,000.

The Steamship & Shipyards Equipment Corp. recently was incorporated in Delaware with 1000 shares of common stock of no par value, by R. L. Lake, 56 Broad street, New York, and others.

The Brooklyn Drydock & Repair Corp. recently was chartered in Delaware with a capital stock of \$5,000,000, by P. J. Dobson, James A. Martin and others.

The Essington shipyard plant, Essington, Pa., recently was damaged by fire. The loss was estimated at \$250,000.

The Electric Sun Blue Print Co., which has been doing business for marine architects at 27 Thames street, New York, has moved into larger quarters at 161 Washington street.

Capitalized at \$125,000 the Mercantile Welding & Salvage Co., New York, recently was incorporated by D. Bush, G. E. Hubbs and E. McMahon, New Brighton, N. Y.

The Ames Shipbuilding & Drydock Co., Seattle, has sold its drydock and will start at once on the construction of another plant.

The capital stock of the International Shipbuilding Co., Pascagoula, Miss., recently was increased from \$1,000,000 to \$5,000,000, and it is reported plans are being prepared for the erection of an addition to the plant.

The Boston Sealing & Turbine Co., Boston, recently was incorporated with a capital stock of \$5000, by Frank J. O'Connell, George Fine and Jacob Fine.

Capitalized at \$100,000, the Collingwood Shipbuilding Corp., Ltd., Montreal, Que., has been incorporated by F. H. Markey, W. W. Skinner, George H. Hyde and others.

The Port Arthur Shipbuilding Corp., Montreal, Que., has been incorporated with a capital stock of \$100,000, by F. H. Markey, W. W. Skinner and G. H. Hyde.

The Boiler Equipment Service Co., Atlanta, Ga., has been organized with a capital stock of \$30,000, by E. A. Brooks, J. N. Fisher and Louis

## Business Changes

The Worthington Pump & Machinery Corp., New York, has purchased from the Platt Iron Works, Dayton, O., drawings, patterns, jigs, templates, special tools, good will and name on the following products: Oil mill machinery; hydraulic turbines and water wheels covering the entire line, horizontal and vertical, high and low head; feed water heaters and high pressure air compressors.

Norton, Lilly & Co. have established an office at Portland, Oreg., and will maintain a permanent branch there. J. S. Ford, manager of the Seattle office, and W. J. Edwards, Pacific coast manager of the company, are temporarily in charge of the new office pending the selection of a permanent representative.

All America Cables, Inc., 89 Broad street, New York, has opened a new office at Rio de Janeiro and Santos, Brazil, to handle direct cable communication between that country and the United States.

The American Hellenic Shipping Corp. and the Maryanne Shipping Co., steamship agents and ship brokers, have removed their offices from 17 State street to 167 East Seventy-second street, New York.

O'Keefe & Lynch, marine underwriters and insurance brokers, New York, have separated the underwriting branch of their business from the brokerage, and have organized the Shippers' Underwriting Agency, Inc. This firm will handle all marine and inland business of the older company with offices on Beaver street, New York.

The Ballard Shipbuilding Co., Seattle, has applied to the courts for permission to dissolve. Formed in 1917 to build the steam schooner H. B. LOVEJOY, the company has also built several smaller vessels. The firm is owned by interests controlling the Ballard marine railway at Seattle.

Under the name of Smith, McDonough & McNamara, a consolidation of the Pennington Co. and Smith, McDonough & Rose, was effected as of July 1. The new organization will maintain offices at 59 Pearl street, New York, and has departments for foreign freight forwarding, trucking and ship brokerage. The members of the firm are Ernest H. Smith, Joseph A. McDonough and Thomas F. McNamara, all men of wide shipping experience.

The Fabre Steamship line has expressed its continued interest in the development of the port of Providence, R. I., by appointing Goff & Page, 224 Industrial Trust building, Providence, as local freight agents and M. Vervina, Columbia Exchange Bank building, passenger agent.

Walter Kidde & Co., Inc., New York City, have appointed J. G. White & Co., Ltd., London, and L. A. Blake, Inc., Buenos Aires, as representatives in England and Argentina respectively, for the sale and installation of the Rich system for detecting and extinguishing marine fires. The two companies will also establish service stations similar to those now maintained by Walter Kidde & Co. in the United States.

The Adair-Day Corp. has been organized by Craig Adair, former vice president, and Hall Day, of the Penn Seaboard Steel Corp. The company will specialize in anchors and chains, gray iron, steel and brass castings for marine work; general steel products and mechanical specialties, with offices at 1025 Widener building, Philadelphia.

The Cast Steel Ship Corp. has moved from 16 Court street to 163 Remsen street, Brooklyn, N. Y.

Columbia Forwarding Co., foreign freight contractor and forwarder, freight and marine insurance broker, 29 Broadway, New York, has established an office in the Continental building, Baltimore. S. B. Francisco is in charge.

Estes, and plans to engage in active business are now being made.

The British Empire Shipbuilding Corp., Ltd., Montreal, Que., has been incorporated with a capital stock of \$100,000, by F. H. Markey and others.

The Brunswick Marine Construction Co., Brunswick, Ga., has closed its foundry and is preparing to ship the equipment to another city. W. C. Irwin is general manager.

Articles of incorporation have been filed by the Sturgeon Bay Dry Dock Co., Sturgeon Bay, Wis., with a capital stock of \$300,000. The incorporators are H. L. Peterson, P. T. Briezel and I. A. Wetzel. The company will engage in general marine engineering business, using the yard, dock and equipment of the Universal Shipbuilding Co., which was established shortly after the outbreak of the war.

The O'Rourke Crane & Engineering Co., New York, recently was incorporated with a capital stock of \$13,750, by P. E. O'Rourke, S. J. Miller and E. T. Vandewater, 311 West Ninety-fifth street, New York.

The American Marine Equipment Corp., Elizabeth, N. J., recently awarded a contract for the erection of an extension to its boiler shop.

The Erie Basin Ship Sealing Corp., Brooklyn, N. Y., has been incorporated with a capital stock of \$25,000, by T. Tollersen, J. J. McIntyre, and G. F. Moran, 9 Second place, Brooklyn.

Contracts have been awarded by the Modern Welding & Machine Co., Pascagoula, Miss., for the erection of a machine shop and foundry.

Another story is being added to the reinforced concrete building of the Thomas Laughlin Co., Portland, Me., giving the firm 10,000 additional square feet of floor space. The improvement will be completed in August.

## New Trade Publications

**HARDENED COPPER.**—A leaflet being distributed by Wertheimer & White, 64 Victoria street, London, S. W. 1, England, treats of the line of hardened copper which is manufactured in the United States and for which this firm is the agent in the United Kingdom. This copper is a synthetic metal composed of copper and various other elements. Its physical properties are said to permit repeated use, drawing to fine wire or rolling to a thin sheet. The metal is also said to have machining qualities like annealed tool steel, high resistance to wear and crushing stress and ability to hold a cutting edge. Salt water is said not to affect this metal. The tensile strength is given at 34,000 pounds per square inch while the metal has a Brinell hardness of 140. The metal has been adapted to general machine work, steam and internal combustion engine work, propellers, propeller shaft bearings, ship fittings, electrical work, bells and to other uses.

**FIRE DETECTING AND EXTINGUISHING SYSTEM.**—Walter Kidde & Co., Inc., New York, have just issued a revised pamphlet explaining the operation of the Rich system for detecting and extinguishing marine fires. The pamphlet outlines, in non-technical form, the advantages of the system, reviewing in detail its operation both in detecting and extinguishing fires in ships' holds, and illustrating this explanation with photographs of parts of the equipment. It further lists the companies which have installed the system.

**PIPE WELDING.**—The Metal & Thermit Corp., New York, has just issued the third edition of its thermit pipe welding pamphlet. In this new edition, the subject of thermit pipe welding has been revised and brought up to date. The new pamphlet describes and illustrates in detail how thermit pipe welds are made and contains reports on successful tensile strength and vibration tests of thermit pipe welds conducted by Stevens Institute. One of the features of the new pamphlet, not previously included in former editions, is a chart showing the cost of a thermit welded pipe as compared with the cost of installing compression flanges with bolts and gaskets, and of installing elbows with flanged connections.